

DEPARTMENT OF THE INTERIOR  
BUREAU OF EDUCATION

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RURAL AND AGRICULTURAL  
EDUCATION AT THE PANAMA-PACIFIC  
INTERNATIONAL EXPOSITION

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## LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,  
BUREAU OF EDUCATION,  
*Washington, October 7, 1915.*

Sir: Were it possible to print for distribution among those who are directly interested in education, a complete account of all the education exhibits of the Panama-Pacific International Exposition, a distinct service might thereby be rendered to the cause of education. But this bureau has no funds with which to have such a report compiled, nor are there funds available for printing it if it were compiled. I have, however, caused two brief reports to be made of some of the most interesting features of these exhibits: a brief general statement of the nature, purpose, and most striking features of the several exhibits, by W. Carson Ryan, jr., editor in this bureau, and a more detailed report of the exhibits in agricultural education and rural schools, by Harold W. Foght, the bureau's specialist in rural school practice. Those who read these two reports will have a fairly good idea of the meaning of these exhibits. I recommend that both be published as bulletins of the Bureau of Education, and I am transmitting herewith the second of these reports for that purpose.

Respectfully submitted.

P. P. CLAXTON,  
*Commissioner.*

## PREFACE.

---

This bulletin was prepared to indicate recent progress in rural life and education as disclosed by the educational exhibits at the Panama-Pacific Exposition of 1915. The discussion includes (1) the general phases of progress in rural education, and (2) advancement in its more specific agricultural phases. Little attempt has been made to present the subject in a systematic way, either by kinds of schools or by school subjects, as the comparatively small number of organized State educational exhibits made such an arrangement impracticable. What was true of exhibits from many of the American States was also true of educational exhibits from foreign nations, which were limited on account of the war or for other reasons. Particularly was this true so far as rural school exhibits are concerned.

The plan followed, therefore, has been to treat the exhibit partly by subject classification and partly by States and countries. A large number of diagrams and photographs has been included, which are depended on to make the context clear and interesting.

Bulletin, 1916, No. 1, prepared by W. Carson Ryan, jr., editor of the Bureau of Education, deals in a more general way with all the educational exhibits at the exposition. It would be desirable for the reader to study this bulletin before taking up the rural and agricultural phases of the exhibits.

Acknowledgment is due the Government Exhibit Board and a number of foreign, State, and local educational commissioners for the use of diagrams and photographs and for much other assistance given while the report was being prepared.

H. W. F.

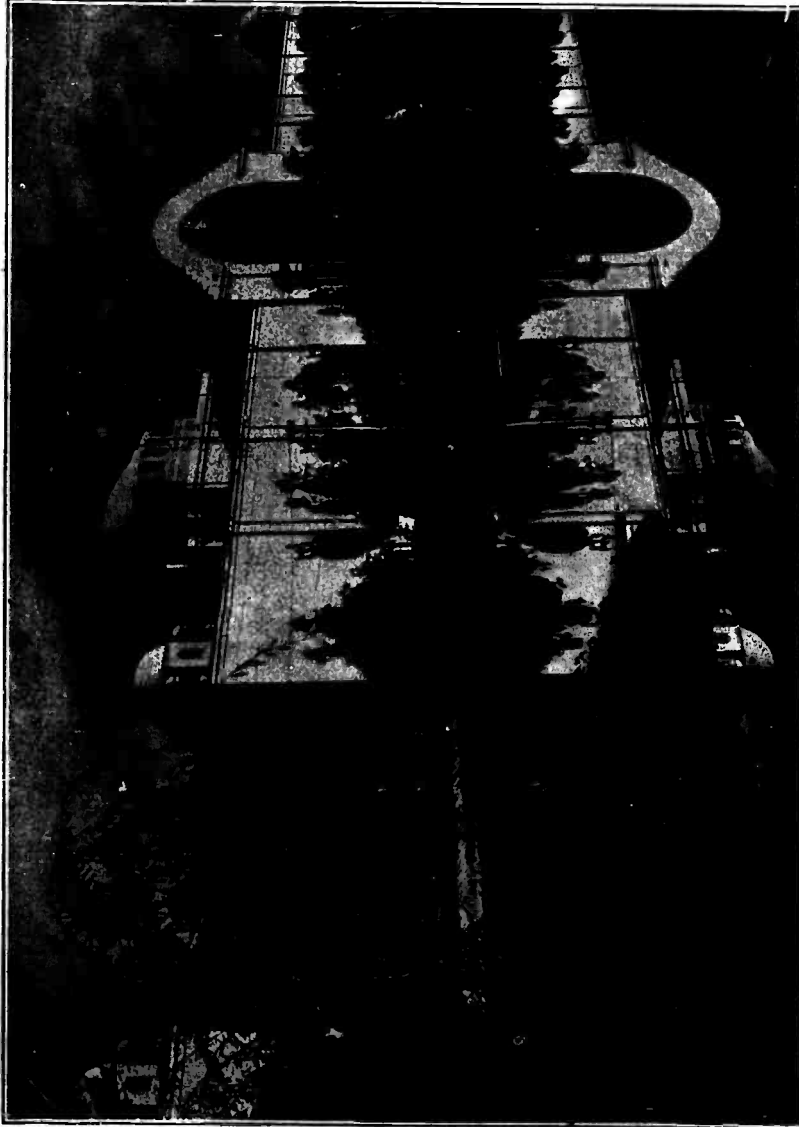


FIG. 1.—Palace of Education and Social Economy, Panama-Pacific International Exposition.



## RURAL AND AGRICULTURAL EDUCATION AT THE PANAMA-PACIFIC EXPOSITION.

### I. UNITED STATES GOVERNMENT.

The general educational exhibit at the Panama-Pacific Exposition was prepared by the Department of the Interior through its Bureau of Education, in cooperation with the United States Department of Agriculture and many schools and colleges throughout the Nation. The exhibits occupied a commanding position, with many thousand square feet of floor space, near the center of the Palace of Education. The Government exhibits may be divided for convenience into—

1. Organization and work of the United States Bureau of Education.
2. Exhibits planned and arranged by the Bureau of Education.
3. Organization of agricultural education in the United States.
4. Activities of agricultural colleges and experiment stations.

### UNITED STATES BUREAU OF EDUCATION.

*Comprehensiveness of the exhibits.*—The Bureau of Education exhibits occupied nearly 9,000 square feet of floor space and comprised numerous large mounted graphic charts, maps, and photographs illustrative of the present status of education in the United States, miniatures of model one-teacher schools and consolidated rural schools, the principal publications of the Bureau of Education, printed matter comprising student annuals and student publications of the leading higher educational institutions, home reading courses offered by the Bureau of Education, bound volumes of the principal educational surveys conducted in this country in recent years, and much other printed matter of interest to the public. The exhibit included, further, the work of the Bureau of Education among the natives of Alaska; the schools of the District of Columbia, with their organization, interests, and activities; schools for Negroes, indicating the present status of Negro education in this country; a comprehensive study of school health in the United States; stereomographs, moving pictures, and moving hexagonal cylinders showing many phases of educational needs and progress in many sections of the country.

*Organization of the United States Bureau of Education.*—The Bureau of Education was established by act of Congress in 1867, in answer to a public demand for a general educational agency to supply accurate information on the subject of educational progress in this and other countries, to make critical investigations of vital educational problems, and otherwise to act as an educational clearing house for the Nation.

The Bureau of Education is under the immediate direction of a Commissioner of Education. Its activities are classified under 16

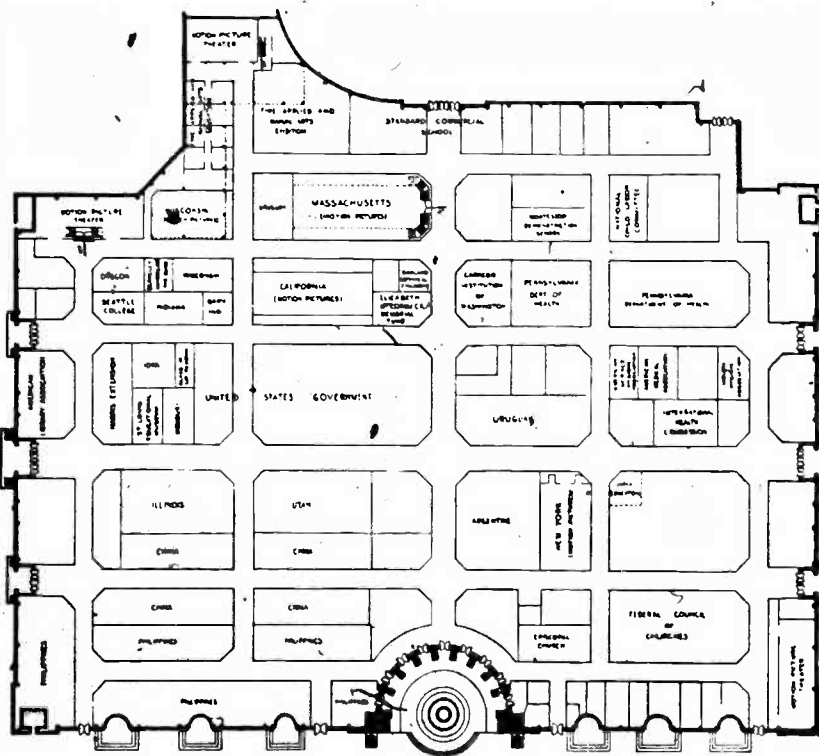


FIG. 2.—Floor plan of the Palace of Education and Social Economy, showing space devoted to education exhibit.

divisions in charge of 26 specialists, 111 collaborators, and 40 clerks. Among other things, the bureau helps to determine the results of the expenditure of \$800,000,000 annually for the school education of 20,000,000 children and the character and intelligence of 100,000,000 people. As appears in the chart reproduced herewith, the Bureau of Education serves higher education through more than 1,500 institutions, secondary education through 13,500 high schools, and rural education through 243,000 schools. It concerns itself with

a study of school administration and supervision, kindergarten work, Negro education, education in home economics, home education, vocational education, home and school gardening, civic education, and health education. It is organized to give expert information on public and private school statistics of all grades and kinds, on library organization, and other educational agencies. It has an Editorial Division which supervises the publication of annual reports of educational progress in the United States and foreign countries, educational statistics of the United States, besides numerous bulletins and circular letters on many subjects. The bureau has also full charge of the education of the natives of Alaska through its Alaska Division, with 7 superintendents, 109 teachers, 12 physicians, and

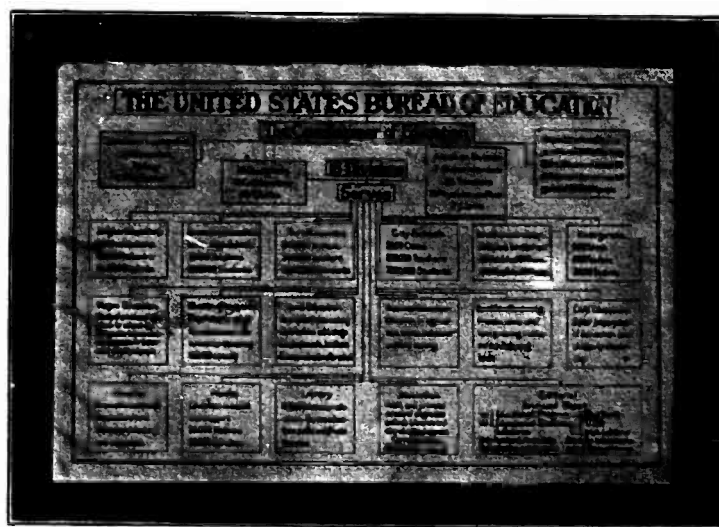


FIG. 8.—Chart illustrating the organization of the United States Bureau of Education.

12 nurses and teachers of sanitation, besides clerks and other assistants.

The Rural School Division of the Bureau of Education is of especial interest to rural-school teachers and rural leaders. It was organized as a division in 1911, and reorganized in 1915 in order to make it better able to meet the increasing demands for expert advice and assistance in the rural field. As now organized the division comprises the subdivisions of rural-school administration, rural-school practice, and rural-school extension service. The subdivision of rural-school administration has been organized to offer expert advice in rural-school administration to State and local boards of education, to advise with commissions and committees on school legislation,

to make school surveys, and to carry on special educational studies in its particular field. The subdivision of rural-school practice



FIG. 4.—Interior view, Palace of Education.

is organized to make a fundamental study of the curricula of rural elementary and secondary schools and to offer such aid to rural

teachers and school officers as may be required of them; to become a clearing house for the latest and best of subject matter and helps in other phases of school practice, including the training of rural teachers, both before going into the service and while in the field. This subdivision has charge of the propagation of the National Rural Teachers' Reading Circle, which has recently been adopted by more than half of the States. The subdivision of rural-school extension is primarily active in such educational interests in rural communities as boys' and girls' industrial clubs, educational rallies, illiteracy campaigns, school fairs, rural-life conferences, wider use of schoolhouses for lecture centers, work for the extension of the school term, securing better teachers' salaries, improvement of school buildings and grounds, organization of parent-teacher associations,

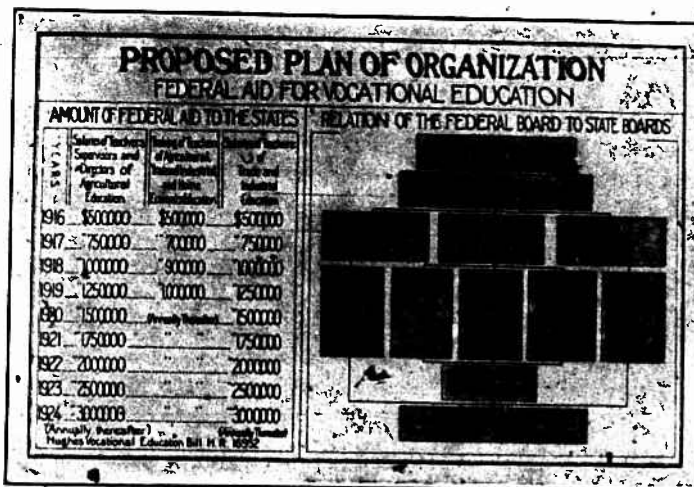


FIG. 5.—Chart showing proposed plan of organization for Federal aid in vocational education.

cooperation with farm demonstration agents and local and State supervisors.

The specialists and assistants in the Division of Rural Education are aided very effectively by nearly 100 special collaborators, who are nominally in the service of the Government, but who, as members of the various school faculties or as State or local school officials, are in a position to report to the Bureau of Education every progressive movement taking place in the rural field. Several of these have undertaken valuable studies, of which a few have already been completed.

*Publications of the Bureau of Education.*—The Bureau of Education exhibit contained bound volumes of the Commissioner's An-

rual Report—comprising as Volume I reports of the educational progress in the United States and throughout the world, as Volume II educational statistics of the United States—bound volumes of various circulars of general information, and bound volumes of bulletins of the bureau, of which about 50 are published annually. The latter contain the results of special educational investigations by bureau specialists and special collaborators connected with State departments of education and higher institutions of learning. Many of these bulletins deal with rural and agricultural education and may be secured by teachers and general readers free of cost by addressing the Bureau of Education. They may also be procured for a nominal sum from the Superintendent of Documents, Government Printing Office, Washington, D. C.

#### EXHIBITS PLANNED AND ORGANIZED BY THE BUREAU OF EDUCATION.

*Proposed plan of Federal aid for vocational education.*—Vocational education received considerable attention in the general educational exhibits. One of the charts presented graphically the provisions of the Smith-Hughes bill, which formed the report of the Commission on Federal Aid for Vocational Education rendered in June, 1914, but which failed of passage at the last session of Congress. The bill was planned to provide Federal aid to public supported and controlled schools below college rank, to train teachers for agricultural education, trade and industrial education, and home economics, and to pay part of the salaries of supervisors and directors of agricultural subjects and teachers of trade and industrial education. The chart shows the plan of the proposed organization. This was to be headed by a Federal board for vocational education to consist of five members—the Secretary of Agriculture, the Secretary of Labor, the Secretary of Commerce, the Secretary of the Interior, and the Postmaster General—with the Commissioner of Education as executive officer. The appropriation for salaries of teachers, supervisors, and directors of agricultural education was to be \$500,000 the first year, increasing to a maximum of \$3,000,000 annually; for training teachers of agricultural, trade, industrial, and home economics education, \$500,000 the first year, increasing in four years to \$1,000,000 annually; for salaries for teachers of trade and industrial education, from \$500,000 the first year to \$3,000,000 annually. The passage of a bill similar to this proposed plan would unquestionably mean for the future of vocational education in the United States what the Smith-Lever Act now means for the extension of agricultural and home economics education in rural communities.

*Negro education.*—Progress in Negro education was graphically told in an exhibit prepared by the Hampton Institute for Negroes, at Hampton, Va. This instructive exhibit comprised graphic charts and photographs of many school activities, emphasized particularly the importance of industrial education for the Negro, and showed graphically the influence of industrial education on his daily occupations. Schools for southern Negroes are giving increasing prominence to agricultural education in the schools and agricultural extension work among adults. The new school courses lay stress on practical phases of agriculture and home and school activities through industrial clubs for young people and moving schools and other forms of extension activities for adults.

### PERCENTAGE OF FARMS OPERATED BY COLORED FARMERS.

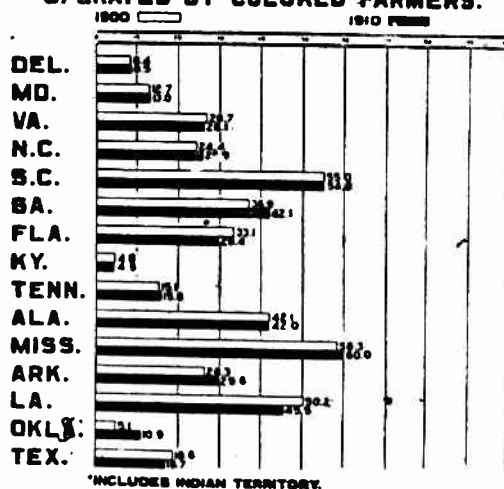


FIG. 6.

Among the charts exhibited two illustrated in a striking way the importance of the Negro as a factor in the Nation's agricultural life and emphasize, consequently, the need for further advancing agricultural and other industrial education for the colored race.

Chart 6 gives the percentage of farms operated by colored farmers in 15 Southern and border States. It shows that in 8 of the 15 States the percentage increase in farms operated by colored farmers is outgrowing the percentage increase in white farmers, which is remarkable in face of the fact that these States are getting a considerable influx of immigrants from Europe and farmers from Northern States.

The companion chart gives the percentage of farm owners among colored farmers. It shows that the percentage of actual farm own-

ers has increased materially between 1900 and 1910 in 9 of the 15 States given in the chart, and that in the other 6 States they have

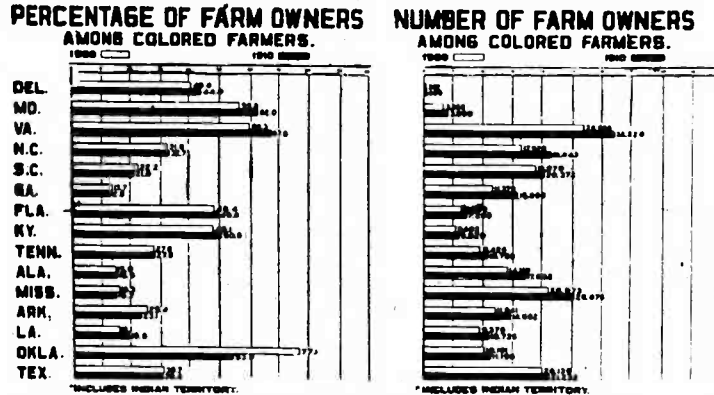


FIG. 7.—The Negro as a factor in national agriculture. From the exhibit prepared by Hampton Institute.

practically held their own in all except 1 State, in which land ownership by Negroes has been discouraged through legislation.

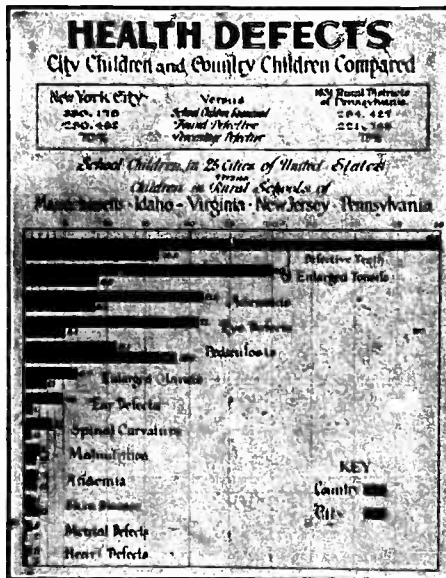


FIG. 8.—In nearly every instance the percentage of defectives is larger among rural children.

Promotion of school health.—No phase of the Bureau of Education exhibit was of greater interest to educators than the exhibit on



school health in the United States. This comprehensive study has been conducted for some time by a committee on health problems in education of the National Council of Education, with the co-operation of a committee of the American Medical Association. The report appeared as a series of graphic charts comprising many phases of information on hygienic and sanitary conditions in rural schools and rural communities in several charts graphically contrasted with similar conditions in city communities. The chart below contrasts the health defects of city and country children.

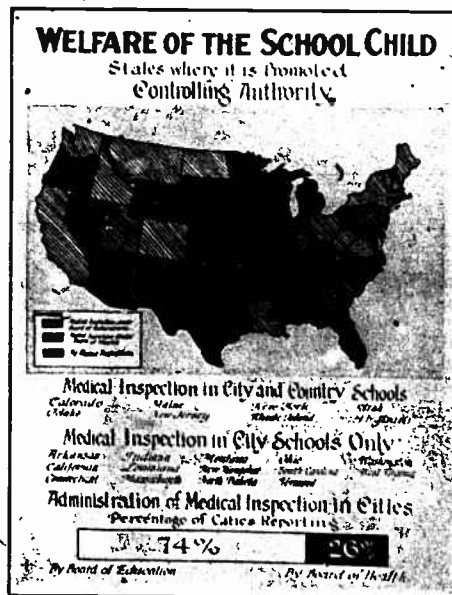


FIG. 9.—Progress in medical inspection in city and rural schools.

A study of this chart discloses that through neglect and lack of understanding of physical education, personal hygiene, and home sanitation the children in the rural schools of Massachusetts, Idaho, Virginia, New Jersey, and Pennsylvania make a much poorer showing than the school children in 25 cities of the United States. In every instance but two—skin diseases and pediculosis—rural children make a poorer showing than do city children. While 70 per cent of the school children of New York City were found defective, 75 per cent of the rural children of Pennsylvania proved defective.

The chart on page 17 shows in black the States with no medical inspection, likewise the States with medical inspection under boards of education and those with medical inspection under boards of health.

The chart shows further that when the report was made 8 States only had provision for medical inspection in rural communities. This has been increased recently to 9 States, through the addition of Pennsylvania.



FIG. 10.—A phase of education still practically unknown in many States.

The chart here given illustrates the work of the school physician. It shows how, in well-organized communities, with the aid of the school nurses, the doctor makes his periodic class inspection to detect contagious diseases; how examinations are made for physical defects, including vision and hearing tests; how conferences are held with parents, whose attention is called to the physical defects of their children; how visits are made to homes of the children by the school nurse and reported by school authorities. In a number of schools not only are physical defects examined, but special work for mental defects is offered as well in hygienic instruction, etc.

The map shown herewith explains recent progress in the introduction of warm lunches in the elementary schools of 30 States and 88 cities.

As appears from the map, 6 States report warm lunches in some of their rural schools, and 26 States and the District of Columbia report serving warm lunches in some of their city schools. The chart emphasizes that warm lunches are necessary to offset the prevalence of malnutrition among school children. The investigation, according to the chart, shows that 10 per cent of city and 16



FIG. 11—Warm lunches are becoming popular in many sections as first work in domestic science.

per cent of rural children who are found defective suffer from malnutrition.

The results of a sanitary inspection of 3,572 district schools in Pennsylvania appear in chart on page 20. While conditions are no worse in this State than in many others, and indeed are a great deal better than in some, it appears that 85 per cent of the schools examined were insanitary, while only 15 per cent were found sanitary.

As appears in the chart, the chief source of trouble could be traced to poor ventilation, vicious toilets and privies, improper heating, and poor cleaning.

The condition of health supervision in the rural schools was shown on the basis of returns from two counties in each of 18 States. Of 1,257 schools reporting, only 61 schools had medical inspection; of 1,216 schools reporting, only 68 schools looked after the care of the teeth; of 1,262 reporting, 294 schools tested the vision of the children; and of 1,240 reporting, 238 schools tested the hearing of the children.

The results of an investigation made by the joint committee on health problems in 1913 are shown in the chart on page 21. The

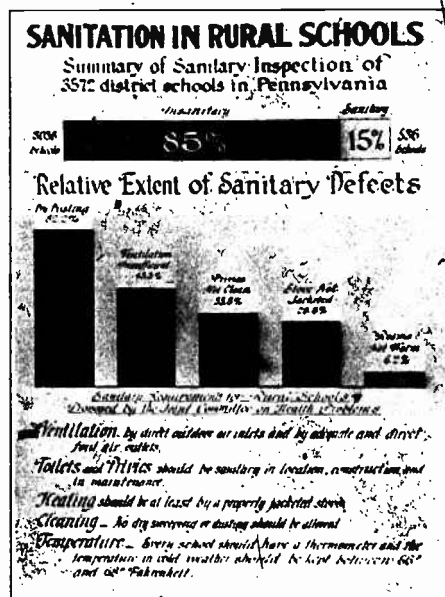


FIG. 12.—Sanitary conditions are no worse in this State than in many others, and a great deal better than in some.

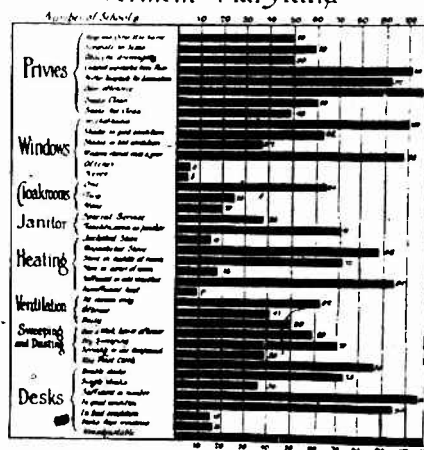
survey covers 109 schools in New York, New Jersey, Connecticut, Vermont, and Maryland, and includes a study of privies, windows, cloakrooms, janitors, heating, ventilation, sweeping and dusting, and desks. It demonstrates emphatically that great improvement is needed in all these matters before conditions can become satisfactory.

Another chart emphasized that drinking water should come from a safe source, and its purity should be certified by the proper authorities. Reports from 1,258 rural schools in 18 States show that 53.4 per cent of the pupils use individual cups, 46.2 per cent still use the common drinking cups, and 4 per cent use drinking fountains. This shows encouraging improvement in modern drinking facilities

The water supply in 109 rural schools in five States was dealt with in still another chart. The outstanding facts of the chart are that dug wells represent 50 per cent of the water supply, while open pails as receptacles for holding drinking water represent 53 per cent, and individual drinking cups 51 per cent. This, too, shows encouraging progress.

### HYGIENIC CONDITIONS IN RURAL SCHOOLS

Survey of 109 Schools in  
New York - New Jersey - Connecticut  
Vermont - Maryland



Investigation made in 1918  
By The Joint Committee on Health Problems

FIG. 13.—The chart emphasizes that great improvement is necessary before the schools can become sanitary.

#### SOME GRAPHIC EXHIBITS PREPARED BY THE BUREAU OF EDUCATION.

Progress in rural and agricultural education was emphasized by means of stereomotographs, motion pictures, and revolving cylinders inscribed with educational mottoes.

*Stereomotographs* were erected at several prominent places in the Bureau of Education exhibits, to illustrate recent progress in general rural and agricultural education, improvement in school architecture, and progress in school consolidation, school gardening, and social center work.

*Revolving cylinders*, erected in a vertical frame, called the attention of the public to present educational tendencies and demands. The most suggestive of these are:

Education the chief interest of the nation.

Educational surveys to determine the task of the schools.

Elimination of illiteracy and extension of education to adult population.  
 More days in the school year; more years in school life.  
 Equal terms, adequate equipment, competent teachers, suitable courses.  
 Physical and moral health; industrial and economic efficiency.  
 Democracy means equality of opportunity.  
 No equality of opportunity without equality of opportunity in education.  
 Equality is not sameness, but wisely adjusted variation.  
 Intelligent, moral, sanitary homes and happy childhood for all.  
 Environment slinks into the soul; schoolhouses should be pure and clean.  
 Education full and free—the inalienable right of every child.  
 For our schools—health, comfort, beauty, right health habits, the first re-  
 quirement in education.

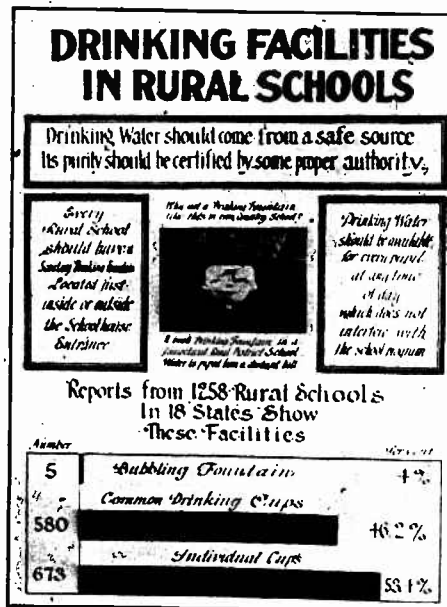


FIG. 14.—Every rural school should have an abundance of pure water taken from a living well or similar source of supply.

Schoolhouse and school régime should minister to health and strength.  
 Children work better when comfortable; good equipment pays.  
 More thorough professional and technical education.  
 Schoolhouses—temples to the God of childhood, the best index to civilization.  
 Constant changes in ideals and life demand constant improvement in schools.  
 Kindergartens for all city, town, and village children.  
 Six years elementary and six years secondary school for all children.  
 Junior and senior colleges adjusted to their means and to public needs.  
 Teachers should know and use home experiences of children.  
 All schools readjusted to life and its tasks.  
 School and home should work together for education of children.  
 Teachers should know the home; parents should know the school.

Parents and teachers should know and respect the children's individuality.  
 The threads of school life and home life should be woven into one web.  
 Long-term contract to secure adjustment of school to the needs of rural life.  
 From the home through the school to industry, society, and state.  
 Needs of rural education—consolidation of schools for economy and efficiency.  
 Intelligent educational direction throughout the year.  
 Home for the teacher, farm for the school, free tuition from kindergarten  
 through the college.  
 For teachers—knowledge of rural life, thorough education, professional skill.

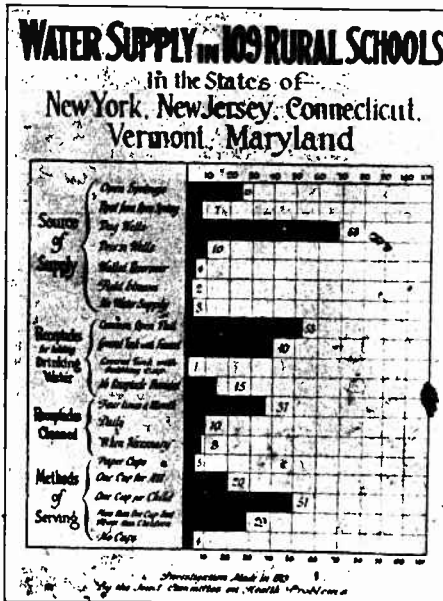


FIG. 15

**RURAL SCHOOL PROGRESS ILLUSTRATED THROUGH MINIATURES OF SCHOOL GROUNDS AND BUILDINGS.**

One of the most interesting exhibits organized by the Bureau of Education was a collection of miniatures of successful consolidated schools and practical one-teacher schools from different parts of the country. These miniatures were constructed to scale on a base of 6 by 7 feet, representing the school grounds, with a screen at the back illustrating such activities as could not be indicated in the ground plans. These exhibits attracted much attention from educators and people of every section of the country, and will, no doubt, inspire many to assist in improving school conditions at home.

*An ideal rural community school.*—Before describing the miniatures mentioned above, it is well to consider for a moment another miniature of an ideal rural school community planned and exhibited

by the United States Bureau of Education. The ideal plant represents 10 acres, containing a practical modern school structure in the foreground which is planned as the community social center. The entire ground area is divided roughly into three sections by groups of shade trees. The central section, running back from the schoolhouse, contains a large baseball field equipped with bleachers, back-stop, and the like. Immediately back of this may be seen the school garden, including individual plats for the children, and also the barn for the school team and other farm animals, together with

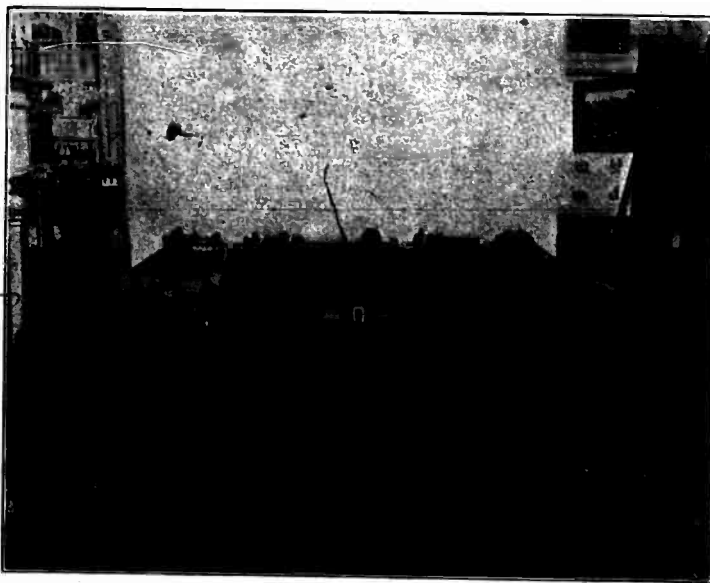


FIG. 16.—Plan for an ideal rural school community.

a series of pens for the poultry, kept as a part of the school equipment. To the right of these, again, is erected a substantial shed for the teams and transportation wagons and the conveyances of the children who do not make use of the school wagons. At the extreme left lies the teacher's home in a good-sized garden and well-kept grounds. It is the belief of the Bureau of Education that the modern community school should have good housing facilities for the principal, and, where possible, for other teachers, in this way assisting them to become real community leaders. In the foreground, and flanking the school building, are playgrounds arranged for tennis, basket ball, and other games.

The remainder of the land is devoted to experiment plats and fields. At the back of the exhibit is a suggestive chart. The features particularly emphasized in the chart are these:



We have altogether too many small one-teacher schools in the United States, these numbering fully 212,000. In centralizing the small schools as



FIG. 17.—A nearer view of the model shown on page 24.

larger community schools, wherever the topography of the country permits, there ought to be one good central school for every 12 square miles. In such

an area every home would be within walking distance of the school. In a representative district of this kind there would be about 50 people to the square mile, making the population of the district 600, with a school population of about 200 who could be taught by a corps of six teachers. Such an ideal community school must have a course of study adapted to the real needs of rural life.

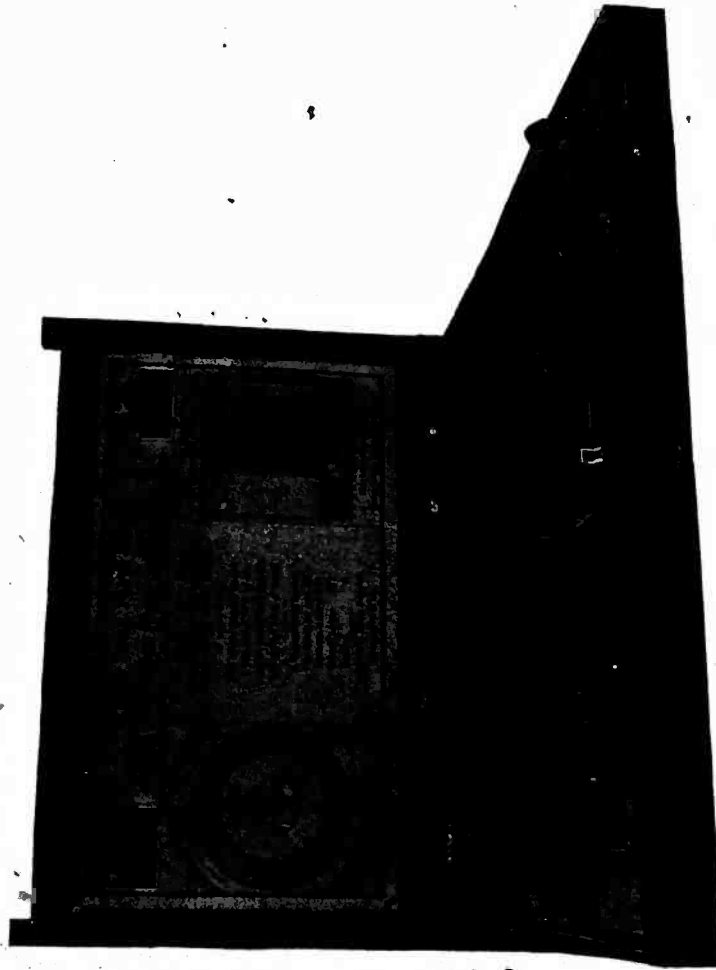


FIG. 18.—A rural community school like the one here idealized would do much to revolutionize American agricultural life.

While this miniature depicted ideal conditions, the exhibit included also miniatures of many consolidated and other rural schools in the United States which very nearly approximate these ideal conditions.

*A Tennessee country-life school.*—The Southern States have begun to develop a school that in some respects meets the needs of agricultural life better than most of the consolidated schools elsewhere.

One of these, established a few years ago as a model for Southern States, is the Farragut School, some of whose activities are shown in the following screen. The school was organized in 1904 by a group of Tennessee educators. An ideal location was selected in Knox County, 15 miles west of Knoxville and  $1\frac{1}{2}$  miles north of Concord, a small village of 300 population, on the Southern Railway. The unique thing about this, as with many other southern schools, is that it was built with money privately subscribed. In 1906 the first building and its contents were destroyed by fire. Undismayed by this calamity, its backers proceeded to rebuild on more pretentious plans. The buildings and equipment were turned over to the people of Knox County shortly after the fire and are now a part

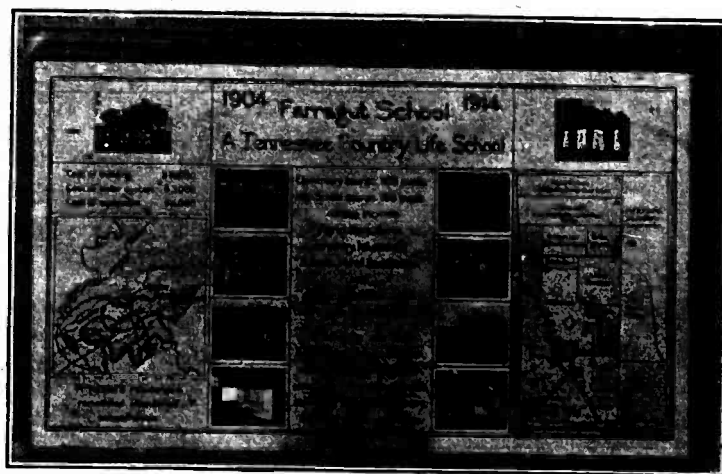


FIG. 19.—A chart describing Farragut School, exhibited in connection with a miniature of the school.

of the public-school system. As they stand, the total school equipment is valued at \$17,000.

The school grounds represent 12 acres, in addition to which 8 acres adjoining are under lease. A study of the screen gives some idea of the arrangement of school grounds and fields. Immediately surrounding the school building are plats of grass, shrubbery, and flower beds. A little farther back may be seen a baseball field, tennis courts, and space for outdoor basket ball. The playgrounds are used by the community as well as by the school. The chief aim of the demonstration work has been to show the farmer and his children how to bring the soil of the community, which is naturally of low fertility, to a state of high fertility in the shortest possible time. The plats are, therefore, used for demonstration rather than for experimental purposes. A very interesting system of rotation is used.

The plats show that the present planting of 2 acres of soy beans is to be followed the second year by crimson clover for corn. The second plat contains 2 acres of corn, to be followed by oats and red clover for hay, and so on throughout the plat. The school takes care of 100 pupils in its elementary courses, and fully 100 in the high-school courses, which include in their study practical agriculture, farm carpentry, household science, rural sanitation, and regular academic work "taught with an agricultural halo." The screen of the Farragut School is in other respects self-explanatory.

*Miniature of Cache la Poudre Consolidated School, Colorado.*—The State Agricultural College, at Fort Collins, has been especially active in studying rural educational problems in Colorado. It has recently completed an eight-year survey of all the 1,728 small rural school districts in the State and has proved in its compilations to the satisfaction of the general public that the present system of rural schools in the State has been wasteful and ineffective, in spite of the fact that the Colorado one-teacher schools have been as well constructed as in most States, the terms of school as long as in a majority of States, and the teachers better paid than in most States. The survey showed, among other things, that out of the eight-year average of 82,174 rural children of school age, 17,789 failed for various reasons to enroll in schools at all; 25,166 were absent from school all the time, while 24,660, although in school, failed to complete the prescribed school course of eight years; 14,559 alone completed the work of the elementary school. As a result of the findings, the agricultural college experts recommended, as a basis for reorganization, that the State make the county the unit for school organization, administration, and supervision, and that, while waiting for this to come about, school consolidation should be encouraged wherever feasible.

The Cache la Poudre School is the result of these efforts and represents one of the rapidly growing group of such schools in Colorado. The school serves an area of 15 square miles, with a population of 800, with 207 homes; 266 pupils are at this time enrolled in its 12 grades, 47 being in the well-equipped high-school department. Eight teachers are employed, five in the grades and three in the high school. While the universal elements of education are taught in the school, the teachers keep in mind that it is a rural community school and that their great task is to prepare Colorado farmers and fruit growers for life work. With this in mind they are doing everything in their power to root the school to the soil.

The buildings are set in 4½ acres of good irrigated land. The playground is ample for all purposes. There are baseball and football fields, tennis courts, and play room for the younger children. A small orchard of five-year-old trees forms the beginning of an excellent

experimental plat. Work in budding and grafting is also under way. The children have individual garden plats, and home-garder work has recently been planned.

A good one-room schoolhouse, which was already on the grounds, has been remodeled at slight cost into a very satisfactory six-room

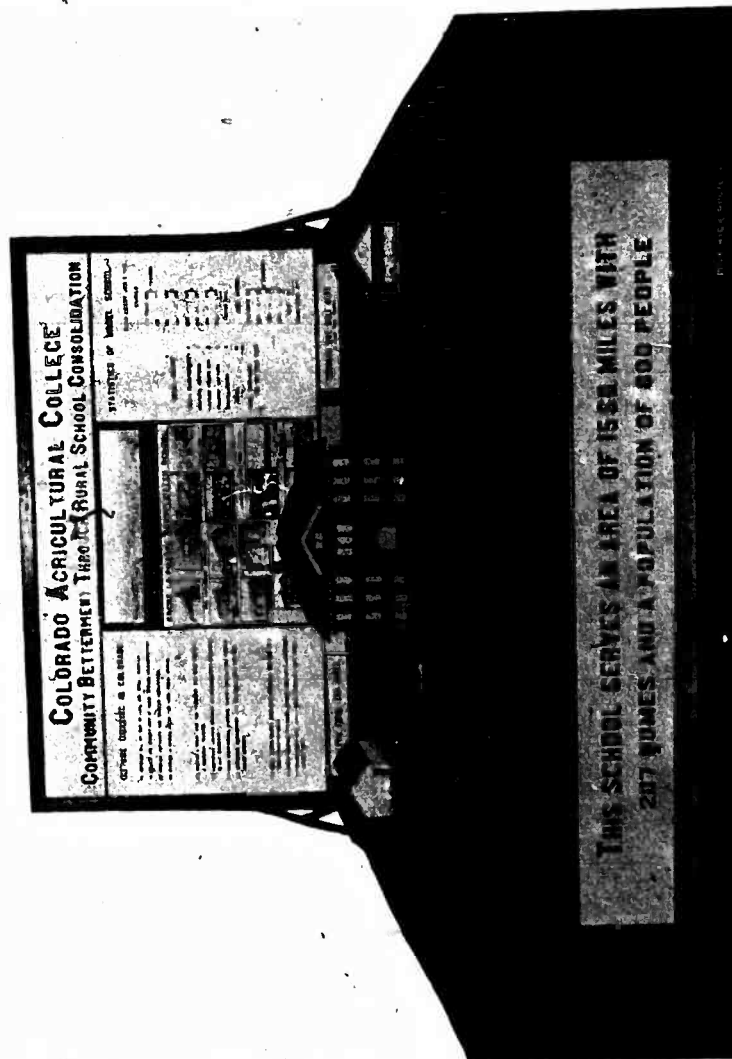


FIG. 20.—The Cache La Poudre consolidated graded and high school near Ft. Collins, Colo.

cottage for the principal of the school. Another one of the old buildings has been made into a good barn and shed for the horses and transportation equipment. The main building is an imposing structure, built of native sandstone and pressed brick. It is three

stories high and has steam heat, fan ventilating system, indoor toilets, baths, and bubbling fountains.

The janitor lives with his family in a suite of five rooms in the basement, which, by the way, is built in such a manner that its cement floors are  $1\frac{1}{2}$  feet higher than the grade of the school yard. The building is supplied with agricultural and biological laboratories, a good library, rest rooms for the women teachers, and a large assembly room, used, among other things, for community meetings and farm lecture courses, which are being held throughout the year; for, beyond everything else, this is a community school, organized for adult patrons as well as for children.

Seven transportation wagons of the latest design are used to convey 163 of the children to school. The system has proved very satisfactory to the people. There is no tardiness with transportation, attendance is at the maximum and the cost for transportation is only 9 cents a day per pupil.

*Rural consolidated school at Alberta, Minn.*—Minnesota is another State that has accomplished much for reorganization of rural schools through consolidation and association of small schools. While many States have a larger number of centralized schools than Minnesota, none has better schools of this class. The chief reason is to be sought in the fact that Minnesota has been more lavish than other States in granting State aid for consolidation purposes, for making the consolidated schools "State high schools" with industrial departments, with courses for the preparation of rural teachers, and the like. The centralized schools are usually established on the edge of rural villages or in the open country.

The Alberta school, while not as large as many in the State, is typical of the open-country class of consolidation. As can be seen from the miniature, the school grounds are well planned. The brick and stone school structure stands in the central foreground. Near-by lies the small home for the teacher, who lives in the community the year round. At the rear and in the foreground are experiment plats and school gardens. The grounds are equipped with tennis court, basket ball court, giant stride, and other playground apparatus. On the far side of the picture can be seen five of the transportation wagons that carry the children to school.

The miniatures shown above should give some idea of the kind of school plants that are gradually supplanting the old pioneer one-teacher schools. It is well to keep in mind, however, that in many sections it is impracticable yet to organize such schools. It may be on account of the forbidding topography of the country or for other reasons. Where this is the case, the "one-room school" of the past should be reorganized as a "one-teacher school" of the present.

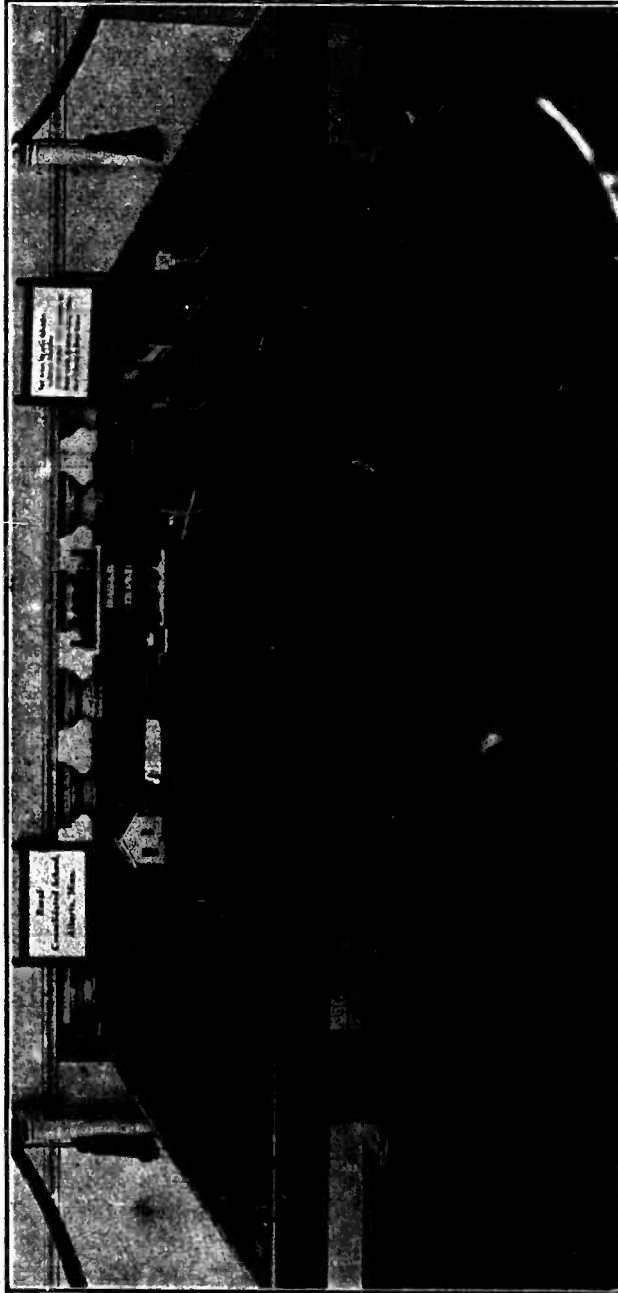


FIG. 21.—Rural consolidated school at Alberta, Minn. The State has a large number of such schools, which are doing much to readjust rural education and rural life.

This means that a strong, well-prepared teacher who has the right vision of country life may go into an average community and reorganize the old school, with community assistance, in such a way as to make it a genuine social-center school.

*Model rural school, Kirksville, Mo.*—A number of institutions, notably State normal schools, have erected model one-teacher schools on or near the campus, for demonstration purposes. The one shown, in the accompanying miniature stands at the corner of the campus of the First District State Normal School, Kirksville, Mo. While intended for an individual teacher, the school is more than a one-room structure. The entire basement is utilized. Here are the pressure

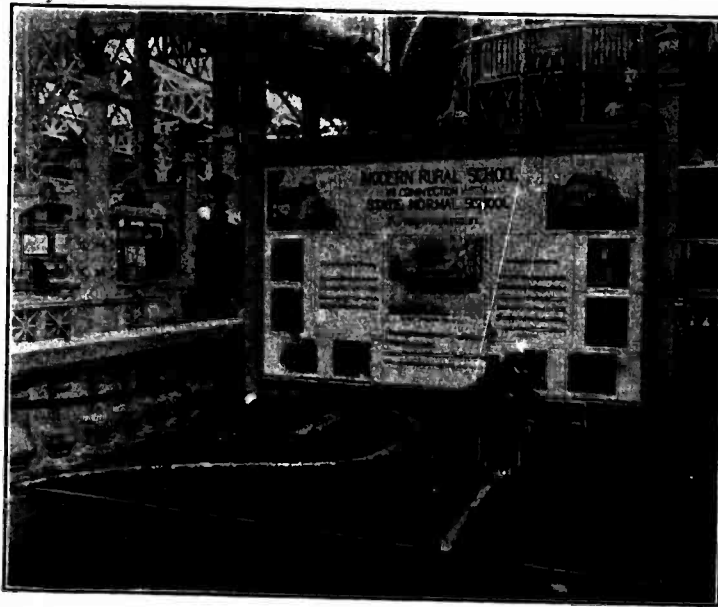


FIG. 22—This school is used as a demonstration and practice school for all rural teachers-in-training at Kirksville, Mo.

tank, which supplies the building with running water; the furnace—a combination hot-water hot-air heating system; the bulb room for the garden; the laundry; and the playroom for small children. The main floor has a well-lighted and well-arranged classroom, separate toilets and shower baths for the boys and girls, a community library for the school patrons, and such modern devices as stereopticon, telephone with connection to all the farm homes, and drinking fountains. The attic, which is usually given over to bats and cobwebs, in the Kirksville school is devoted to work in household economics at one end and shopwork for boys at the others. It has been maintained by some educators that this school plant is too complex



for the average rural community. On the other hand, continued experience at Kirksville seems to have shown that one teacher can easily manage the entire school, and the machinery, as pump, gasoline engine, etc., are so simple that seventh grade boys can easily take care of them. The authorities maintain that any boy who knows how to crank an automobile or a gasoline engine has all the knowledge required to run the machinery of this school.

The chart at the back of the exhibit showed some of the daily activities in the school. At the center of the screen was a photograph showing the children coming to school in the morning, all of them being rural children, carried a distance of 5 miles. The wagon has been

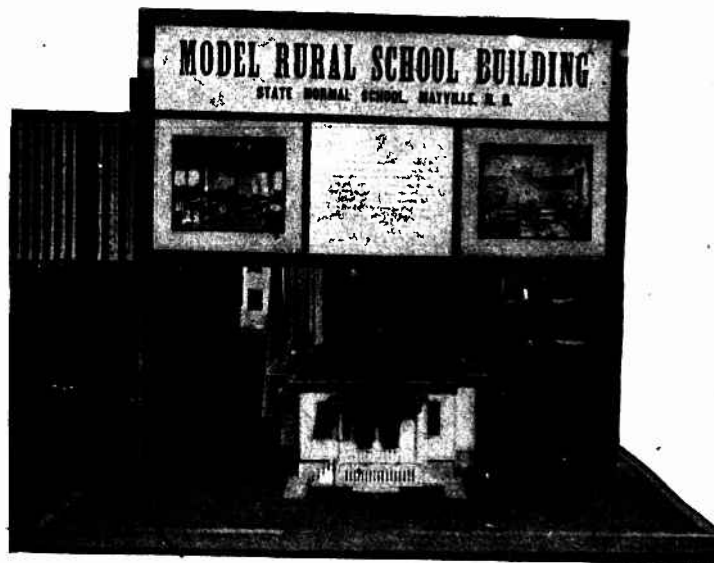


FIG. 23.—Model rural school on the campus of the State Normal School, Mayville, N. Dak.

used successfully for eight years. In all that time it has not missed more than half a dozen days on account of bad roads—a record which will convince the most conservative people of the practicability of conveying children to school by this method. This school building can be duplicated anywhere in the United States for \$2,200. Complete, with sanitary plumbing and hot-water heat, it can be constructed for \$2,750, and with all equipment for \$3,200. Such a school should inspire the teachers to demand a modern school plant, and it suggests for every rural community a satisfactory social center.

*Model rural school, State Normal School, Mayville, N. Dak.—*  
The second model rural school miniature was exhibited by the State

Normal School at Mayville, N. Dak. This is the so-called cottage model. The basement is used for furnace, playroom, and cistern, which furnishes water for the school. The one marked feature is the arrangement of the main floor. This is planned for one main classroom and separate alcoves for work in agriculture, manual training, and domestic science, all arranged, as per main floor plan attached, to enable the teacher at his desk to oversee the students at work in all three alcoves. Besides the classroom and alcoves, the main floor contains separate cloakrooms and toilets for the boys and girls. The toilets are equipped with sanitary dry closets.

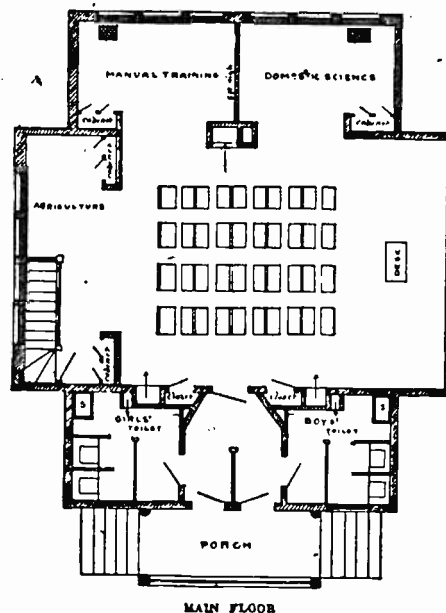


FIG. 24.—Ground plan of the Mayville Model School.

*A study of school elimination.*—Another miniature which attracted considerable attention was exhibited by the Bureau of Education, showing in a graphic way the loss in pupils up through the various steps of the public-school system. The miniature started a group of 60 pupils with the elementary school, and by means of sliding platforms carried them through the elementary school to the high school and thence to the college. Of 60 pupils entering school in 1897-98, 53 were in the fourth grade in 1900-1901, 25 in the eighth grade in 1904-5, 15 entered high school in 1905-6, 5 completed the high-school course in 1909-10, 3 were in college in 1910-11, and 1 graduated from college in 1915. It is believed that when all the steps in the public-school system are reorganized to meet the

needs of daily life, the percentage graduating from college will be materially increased.

**ORGANIZATION OF AGRICULTURAL EDUCATION IN THE UNITED STATES.**

A graphic exhibit of the organization and growth of agricultural education and extension was prepared by the United States Department of Agriculture. The exhibit consisted in the main of a series of suggestive charts arranged to give the observer at a glance a full perspective of agricultural organization and development.

One chart showed the scheme of agricultural organization and extension in the United States. The Department of Agriculture, through its many bureaus and offices, as shown in the chart, has

*ORGANIZATION OF AGRICULTURAL EXTENSION WORK IN THE UNITED STATES.*

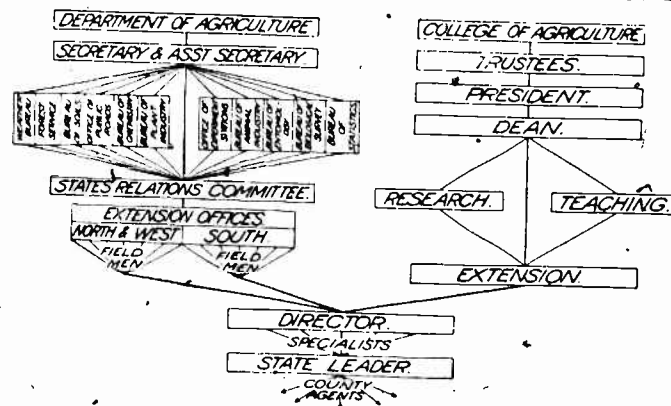


FIG. 25.—Chart showing the organization of agricultural extension work in the United States.

organized a States' Relation Service, with thoroughly organized extension work in the North and West and South.

The several States have their own colleges of agriculture, partly maintained through Federal aid, organized for teaching, research, and extension. The research work is promoted at the college of agriculture experiment stations, which were established and receive Federal aid through the Hatch Act of 1887, strengthened by the Adams Act of 1906. The extension service has been developed through several funds, partly State and partly Federal. With the passage of the Smith-Lever Act, which was approved by the President in 1914, agricultural extension has received a new impetus. When the funds under this act become fully matured, every rural community of the country will receive the benefits of a thoroughly organized extension service in agriculture and home economics.

The organization of a typical college of agriculture is shown in a chart reproduced herewith. The threefold purpose of organization—teaching, research, and extension—is accomplished through eight important departments devoted to the fundamental sciences, plant production, animal production, agrotechny, rural engineering, rural economics and sociology, agricultural education, and home economics.

The main divisions of agriculture and its related sciences are set forth below. The fundamental sciences included are agricultural physics, agricultural chemistry, agricultural botany, agricultural bacteriology, plant pathology, economic zoology (subdivided as insects,

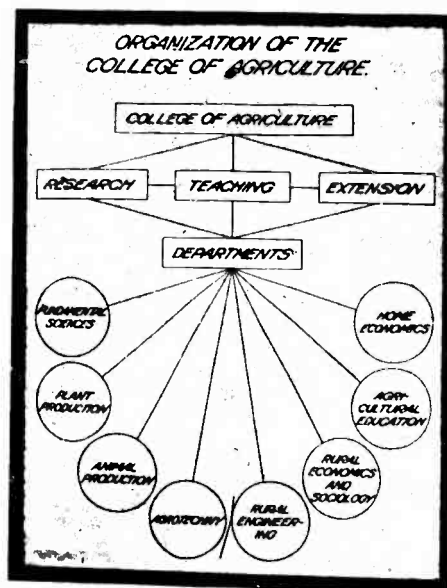


FIG. 26.—The college of agriculture.

birds, and mammals), and economics. Plant production includes agronomy, horticulture, and forestry; animal production includes breeding, feeding, management, and diseases; agrotechny includes dairying, sugar making, milling, etc.; rural engineering includes farm mechanics, farm buildings, irrigation, drainage, and roads. Finally, rural economics and sociology are subdivided as farm management, economics, and rural organization.

Figure 28, on page 38, contains a concise statement of the organization and purpose of the Association of American Agricultural Colleges and Experiment Stations. The association is a great delegate body composed of representatives of the land-grant colleges, the State

experiment stations, the United States Bureau of Education, the United States Department of Agriculture, and the Office of Experiment Stations of the Department of Agriculture. The purpose of the association is organization to the end of securing mutual cooperation in all matters dealing with the advancement of agriculture through all its phases in this country.

An interesting summary of statistics of the agricultural experiment stations in the United States was contained in one of the charts. It showed graphically the increase between 1904 and 1913 in Federal and State appropriations, etc., from a little more than \$1,500,000 to

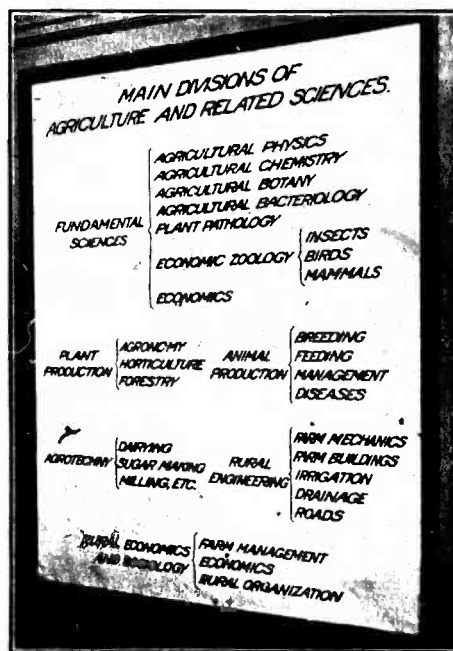


FIG. 27.

nearly \$4,500,000. The persons employed in 1904 were 795. These had increased in 1913 to 1,639. The publications for the same period had practically doubled, and the people reached through mailing lists had increased from 685,301 to 1,010,668.

A concise statement of national extension work in agriculture and home economics under the Smith-Lever Act is presented in chart form on page 40.

The funds, it is shown, are administered by the State colleges of agriculture, in cooperation with the United States Department of Agriculture, which have the further cooperation of State depart-

ments of agriculture and education, and many other voluntary National, State, and local organizations. The principal lines of extension work are demonstrations with field crops, spraying, animal husbandry, dairying and farm management, boys' and girls' clubs, movable schools, meetings of farmers and their families, distribution of publications, information through correspondence, and advice through personal visits.

Another chart showed, year by year, the amount of Federal aid to which the States are eligible under the Smith-Lever Act. Each State college of agriculture receives perpetually \$10,000 annually without

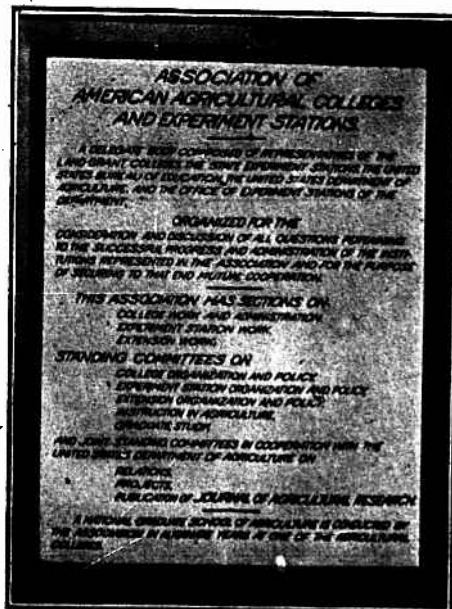


FIG. 28.

requiring additional appropriations from the State. The act provides further for an annual increase in the fund for each State, based on the per cent that the rural population of the State bears to the total rural population of the Nation. This increase, however, is contingent on similar annual appropriations to be voted by the legislatures of the several States.

The ultimate work of the agricultural extension service is in the hands of the so-called county agricultural agents, who are supported in part through the extension funds mentioned above, and partly through local support. The map on page 42 gives the distribution of the county agents over the United States.

The South, according to the map, has the most extensive service. Work was begun by the Federal Government in cooperation with the General Education Board a number of years ago. The light shade in the map indicates that the cooperation consists of payment in full or in part of the agents' salaries and expenses, the black that the expenses for maintaining the agents are met wholly by Federal funds, and the black dots indicate counties in which girls' clubs are established with county agents in charge. Industrial clubs are otherwise established in practically every State of the Union, partly under the direction of the Department of Agriculture and partly under the direction of the different State departments of education.

**SUMMARY OF STATISTICS OF THE  
AGRICULTURAL EXPERIMENT STATIONS  
IN THE UNITED STATES.**

|                                | 1904          | 1913           |
|--------------------------------|---------------|----------------|
| FEDERAL APPROPRIATIONS.....    | \$ 719,999.67 | \$1,440,000.00 |
| STATE APPROPRIATIONS.....      | 522,391.89    | 1,540,133.20   |
| MISCELLANEOUS INCOME.....      | 266,428.66    | 1,407,502.26   |
| TOTAL REVENUE.....             | 1,508,820.25  | 4,387,635.46   |
| ADDITIONS TO EQUIPMENT.....    | 293,451.69    | 731,429.49     |
| PERSONS EMPLOYED.....          | 795           | 1,639          |
| PUBLICATIONS ISSUED.....       | 393           | 624            |
| ADDRESSES ON MAILING LIST..... | 685,301       | 1,010,668      |

FIG. 20.—Agricultural experiment stations.

#### STATE COLLEGES AND EXPERIMENT STATIONS.

Thirteen representative States were included in this division of the United States Government section. The exhibits were planned chiefly to emphasize the work of the State agricultural colleges and experiment stations for the advancement of agriculture, and fall properly under the heads of agronomy, agricultural engineering, agricultural technology, animal husbandry, dairy husbandry, forestry, horticulture, plant pathology, rural economics and sociology, and soils and fertilizers. Several of the exhibits were planned for the purpose of emphasizing one single experiment—and these were among the most effective—while others were more general in nature.

Taken as a whole, these exhibits showed graphically the important work the State colleges of agriculture and experiment stations are attempting for scientific agriculture in their respective sections of the country.

The exhibits are arranged below mainly according to floor position in the Palace of Education and without regard to other classification.

*Animal husbandry.*—In this section the Pennsylvania State College institute of animal nutrition had on exhibit a model of the respiration calorimeter, which it operates in connection with the

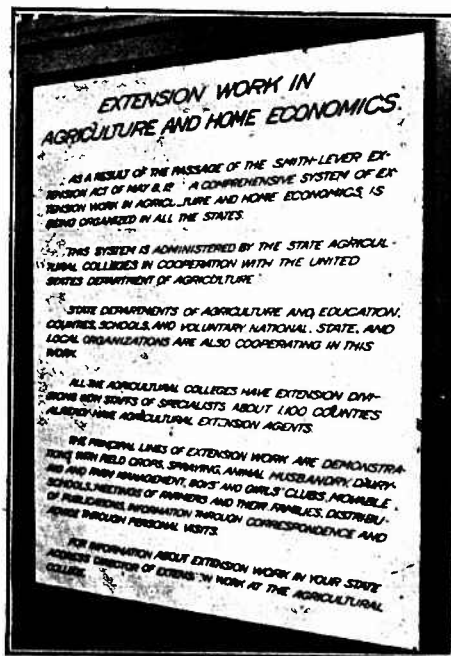


FIG. 30.—The Smith-Lever work.

Bureau of Animal Industry in the United States Department of Agriculture.

This remarkable apparatus is designed for experiments with cattle, and by means of it determinations are made of the heat produced and the products of respiration and excretion given off by the animal under experiment in the respiration changes. The amount, composition, and fuel value of the food and excretory products are also determined, and the data thus derived furnish a basis for the calculation of the income and outgo of matter and energy of the animal's body. This furnishes data for studying the nutritive value of different feeding stuffs and rations and other practical problems of animal





periment Station. The experiment with pigs showed clearly the deficiency of corn as an exclusive feed for young animals. The feeding of corn with protein supplements produced better growth and development and gave greater strength to the bones than the use of corn alone or corn fed with protein-free skim milk. The work on the feeding of draft colts and its influence on their development showed that, when fed with alfalfa hay, corn stover, and wheat straw, a combination of 70 per cent corn, 25 per cent bran, and 5 per cent oil meal gave better results as to condition and growth than the use of oats, the two rations having practically the same nutritive and energy value. Data presented to indicate the effect of the plan of nutrition on the development of steers showed that feeding the

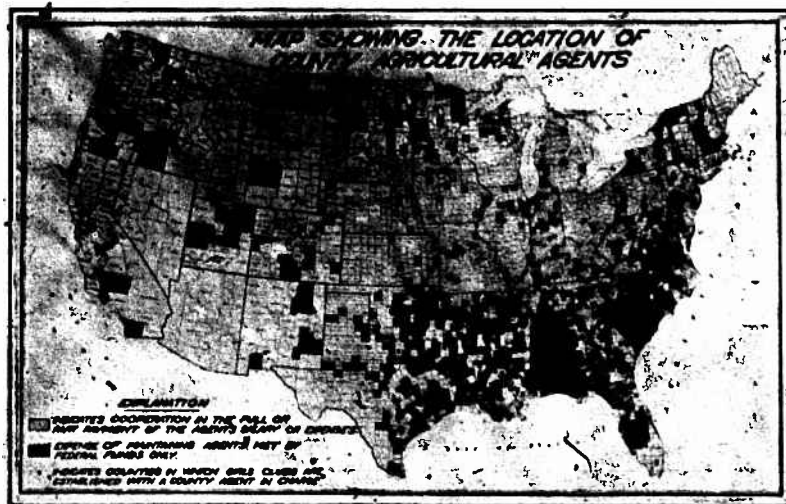


FIG. 32.—County agricultural agents.

animals all they care to eat until fully grown tends to produce the greatest live weight and to give a greater height at the shoulders and a greater width at the hips than keeping them on a maintenance ration for a year or more and then feeding them according to appetite. This latter method of feeding seemed to reduce development and to stunt certain animals beyond recovery.

*Dairy husbandry.*—The College of Agriculture and the Experiment Station of the University of Missouri had an exhibit illustrating the research teaching and extension service in dairy husbandry. Different phases of college extension work were shown by a series of transparencies, and results of investigation were presented graphically in other ways.

A summary of dairy herd records representing 20 years' work showed that there is a marked seasonal variation in the richness of milk, and that the average fat content is highest in December and lowest in July, regardless of the feed or the time of freshening. It was also pointed out that one of the principal causes of wide variation in milk production is the individuality of cows, the variation resulting largely from the difference in the proportion of the daily ration used for milk production above the portion of the feed consumed required for maintenance. The results of other experiments indicated that a cow in good condition at parturition is likely to give milk of a higher average yearly fat content than if she had been

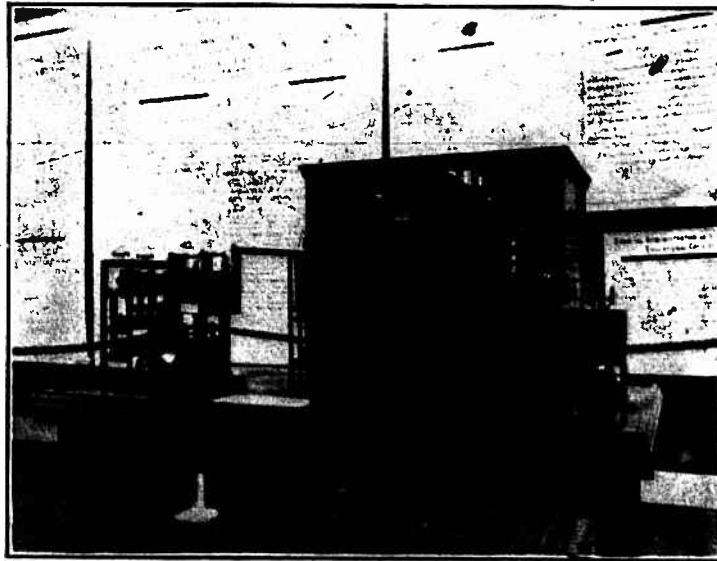


FIG. 33.—Respiration calorimeter, Pennsylvania State College section.

in poor condition. In addition to these features, an exhibit was presented calling attention to the fact that such green feeds as grass and properly cured alfalfa hay contain relatively large amounts of a yellow pigment called carotene, while dry feeds, such as bran, corn, timothy hay, and corn stover, either lack this pigment or contain it in very small quantities. It is pointed out that the carotene in the feeds imparts the yellow color to butter, and for this reason butter from cows fed green feeds is generally yellow, while butter from those fed on dry feeds is likely to be white.

*Soils and fertilizers.*—In the section of soils and fertilizers the New Jersey Experiment Station showed samples from the upper 3 feet of soils under humid conditions, together with numerous charts

and photographs illustrative of soil investigations pursued at different times. A study of the accumulation and utilization of nitrogen on different types of soils with different fertilizer treatment showed that the best results were secured on Quinton sandy loam with lime, minerals, and nitrate of soda or green manure. The best yields of dry matter and the largest nitrogen recovery were obtained from the use of nitrate of soda. The results of laboratory experiments figured in the exhibit indicated that acid phosphate favored the growth of soil fungi. Photographs were shown illustrating the value of soil inoculation in growing leguminous crops.



FIG. 34.—Animal husbandry collection, experiment station, the University of Missouri.

The effect of acid soil on the growth of barley and crimson clover, and the importance of lime as a factor in the utilization of nitrogen, were indicated. The chemical composition of some New Jersey soils was given, and the plant-food content of the New Jersey green sand marl was also pointed out. Specimens of soy beans and peanut plants grown in soils inoculated with pure cultures of the respective bacteria were included in the exhibit, together with samples of pure cultures for soil inoculation for different leguminous crops.

The exhibit contributed by the College of Agriculture of the University of California comprised a series of soil samples from each one

of the upper 9 feet of a number of typical California soils representative of the semiarid soils in comparison with the samples of humid soils in the New Jersey exhibit. A sample of the humus solution representing each foot of the different soil columns was shown to call attention, among other things, to the humus content of these soils at the different depths. As a further illustration of the available plant food at different distances from the surface, the development of root systems of various plants was shown in photographs, and a specimen of Hop root of remarkable length was exhibited. The mechanical composition of six typical California soils was represented by the actual results of analyses, and their chemical composition was shown in a chart. In addition, the process of soil

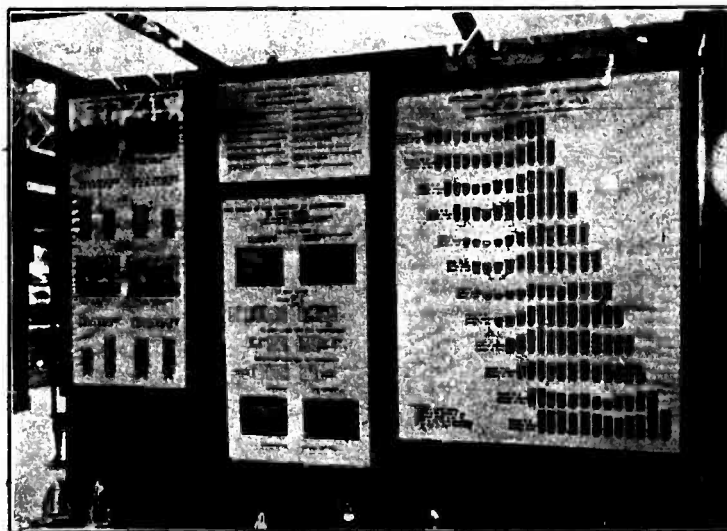


FIG. 35.—Dairy husbandry in the Missouri section.

formation under varied conditions was illustrated graphically as well as by photographs, and 14 samples were exhibited, together with photographs, showing soil conditions and crops produced in various parts of California.

The fertilizer exhibit, also contributed by the University of California, consisted of samples of different forms of nitrogen, phosphoric acid, and potash for foreign use, and photographs indicating the methods employed in fertilizer control work and in teaching the subject. Publications issued by the institution and bearing on the use of fertilizers were exhibited, together with statistics on the consumption of fertilizers in the State and with diagrams comparing the cost of nitrogen, phosphoric acid, and potash when purchased

in different forms. Samples of kelp were shown to call attention to this marine plant as a source of potash salts.

*Agricultural engineering.*—The section in agricultural engineering contributed by the Iowa Agricultural College demonstrated the principal lines of work pursued by the department of agricultural engineering of the institution. The exhibit included a model of an ideal farmstead, embodying the recommendations of the college, and a case of exhibit materials showing the activities of the college in teaching, research, and extension work, and including for this purpose specimens of students' shopwork, publications by students and by the college, models of farm structures, working models illustrat-

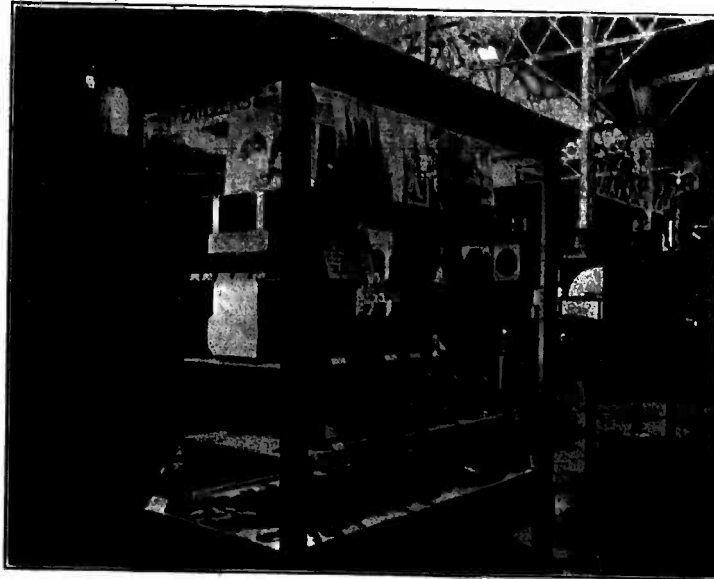


FIG. 36.—In the section of the New Jersey Experiment Station.

ing the action of two and four stroke cycle engines, and numerous photographs showing college and station views and activities.

*Horticulture.*—Agricultural college and experiment station work in horticulture was illustrated by materials received from the Massachusetts Agricultural College and the College of Agriculture of the University of California. The Massachusetts institution illustrated its work in floriculture by means of photographs, publications, and samples of materials used in different lines of instruction, including the construction of greenhouses. Along the more general lines of horticulture, types of pruning tools were shown, and a collection of specimens was presented which demonstrated proper and improper

methods of pruning and their effect. Spraying appliances, including shut-offs, couplings, types of hose, and nozzles were exhibited, and samples of manufactured fruit products, such as jellies, jams, butters, grape juice, cider, and cider vinegar, were included in the exhibit to call attention to this phase of the work conducted by the institution in an effort to establish a greater utilization of the lower grades of fruits and otherwise waste products. Other college and station activities were shown by means of photographs.

The horticultural exhibit of the College of Agriculture of the University of California was based on the work in viticulture,

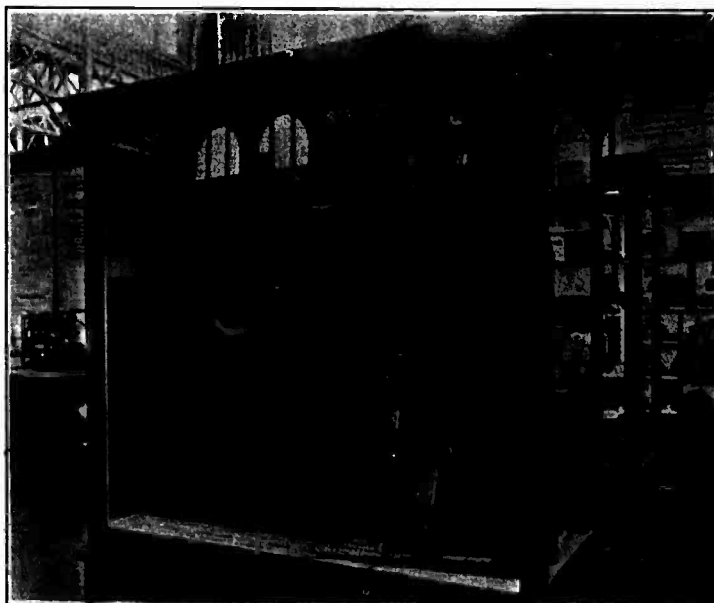


FIG. 37.—In the section of the College of Agriculture of the University of California.

enology, zymology, and oleiculture. Photographs were presented showing laboratory and orchard work of students in viticulture and of different operations in fig culture, together with specimens illustrating caprifigging through the agency of *Blastophaga grossorum* and its results. Date seeds as a basis for the classification of varieties were exhibited, and the propagation of citrus trees was illustrated by means of specimens and photographs. Grape seeds and olive pits were included in the exhibit to show how these differ in varieties. Results of experiments in raisin making were given to show that the riper grapes give the larger raisin crop. The methods of packing grapes were illustrated by means of sample packages, samples

of packing material, and photographs. A vine-cutting machine, a device for determining the diameter of cuttings, and an olive-seed clipper, designed by the California Experiment Station, were also included. The results of germination tests showed that soaking olive seeds in water for 15 days and clipping the apex of the seeds is most efficient in hastening germination. A model of a yeast propagator for wineries was shown, and directions for its use were given. In addition, a model was presented of an apparatus designed by this station for making olive paste, and samples of paste made of green and ripe olives were shown. Attention was called to the results of fruit-juice investigations by the station by an exhibit of 23 samples

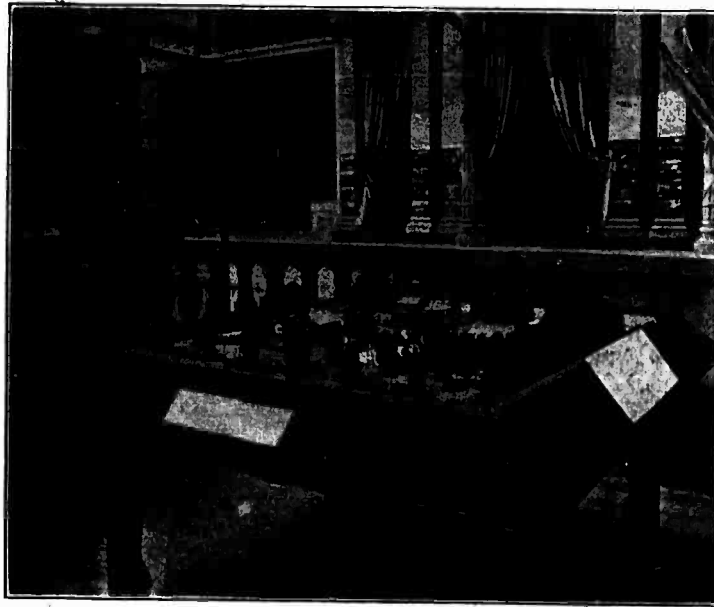


FIG 38.—Model of an ideal farmstead, as shown by the Iowa Agricultural College.

of different products from grapes, oranges, apples, and lemons, and the different methods of preparation were explained.

*Rural economics and sociology.*—Interesting exhibits in the section of rural economics and sociology were furnished by the Massachusetts Agricultural College, the Agricultural College and Experiment Station of the University of Wisconsin, and the New York State College of Agriculture and Experiment Station at Cornell University. The materials supplied by the Massachusetts Agricultural College consisted of charts and publications describing unsatisfactory social conditions in rural communities, and showing how they



may be remedied with the agricultural college as a cooperating factor. The results of social surveys of different communities were presented, showing the relation of rural homes to the number of churches, the number and type of schools, and to social and fraternal organizations. The frequency of newspapers and magazines and farm journals in the community surveyed was indicated, and methods of holding conferences, courses at extension schools, and programs of rural gatherings were given.

The Wisconsin College of Agriculture outlined its courses in rural economics, which included studies of the principles of economics,

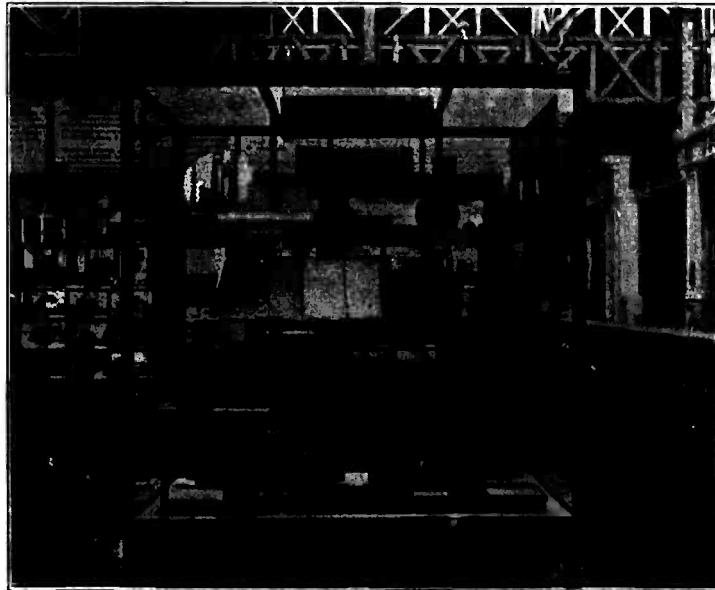


FIG. 39.—In the section of agricultural engineering

farm records and accounts, farm management, land tenure, the economic history of agriculture, cooperation and marketing, and rural life problems. Research work in progress was reported as covering cost accounting, farm and rural life surveys, the history of agricultural production in the United States, farm credit in Wisconsin, and marketing Wisconsin potatoes, butter, and cheese; and the extension work as including farm contests, assistance given farmers in accounting, and lectures on farm management, marketing, and cooperation. The results of the study of marketing of Wisconsin cheese were shown graphically, and facts with reference to the rank of Wisconsin as a cheese-producing State, the distribution of primary ship-

ments from Wisconsin, and the relative proportion of American and foreign types of cheeses to different States were pointed out. It was shown that Wisconsin is the leading cheese-producing State, and that Illinois receives the largest quantity of Wisconsin cheese in primary shipments. The cost of manufacturing and marketing Wisconsin cheese of different types was shown, and the portion of the price paid by the consumer which goes to the producer and the different middle men was indicated.

The New York State College of Agriculture exhibited a farmers' work report and ledger account on growing potatoes, and a summary,

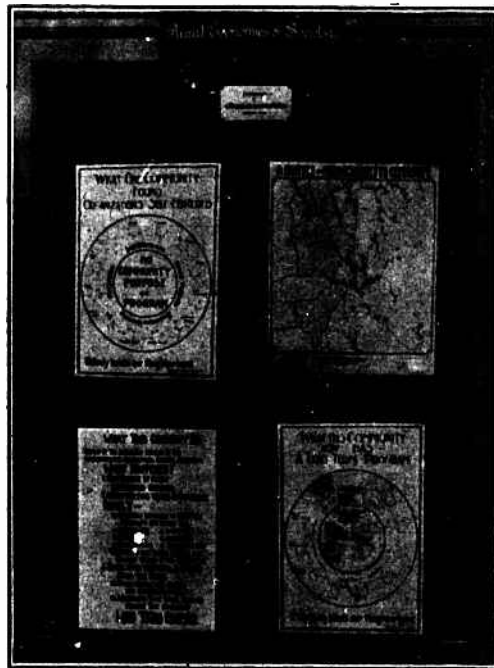


FIG. 40.—In the exhibit of the Massachusetts Agricultural College.

of accounts on the production and disposal of cabbage, corn silage, hay, and oats. Sets of cost accounts from successful New York farms were shown, and attention was called to the fact that success depends upon the size of the farm, the efficient use of men and horses, and the interrelation of these two factors.

*Agronomy.*—The material illustrating work in agronomy was supplied by the Illinois, Kansas, and South Carolina agricultural colleges. The College of Agriculture of the University of Illinois illustrated its work in corn breeding with a specimen of branch corn,

a mutant from Leaming Yellow Dent, and specimens showing the heredity of albinism and partial albinism, the families giving three to one ratios in segregation with greens dominant to albinos and to green yellows. Part of this exhibit showed by means of breeding methods that the oil as well as the protein content of corn may be increased or diminished to a marked extent. The influence of the type of soil as affecting the results secured with the three essential plant food elements was demonstrated by a series of baskets of corn representing the different yields secured and bringing out the fact



FIG. 41. In the exhibit of the New York State College of Agriculture at Cornell University.

that on sand the use of nitrogen produced 63.95 bushels per acre, or more than three times the yield obtained from the use of either phosphoric acid or potash. On peat, potash gave an acre yield of 39.63 bushels, as compared with 2.45 for nitrogen and 1.7 bushels for phosphoric acid, and on brown silt loam the application of phosphoric acid resulted in a yield of 65.6 bushels per acre, as compared with 52.97 for nitrogen and 52.73 for potash. The progress of soil-survey work in Illinois was shown by means of an interesting map.

The exhibit of the Kansas Agricultural College and Experiment Station pointed out that, in experiments on the preparation of land for winter wheat, land plowed 7 inches deep on July 15 gave a yield of 27.87 bushels per acre, while land plowed 3 inches deep on August 15 and September 15 gave smaller returns. Photographs of wheat on land plowed at different times were exhibited. It was also shown that crop rotation, even when restricted to corn, oats, and wheat, gives better results than continuous cropping. Field and milling tests of pure strains of wheat were outlined to show that the best variety is the one giving the largest average yield of flour of the best quality. Of the five varieties, Turkey No. 839 hard winter

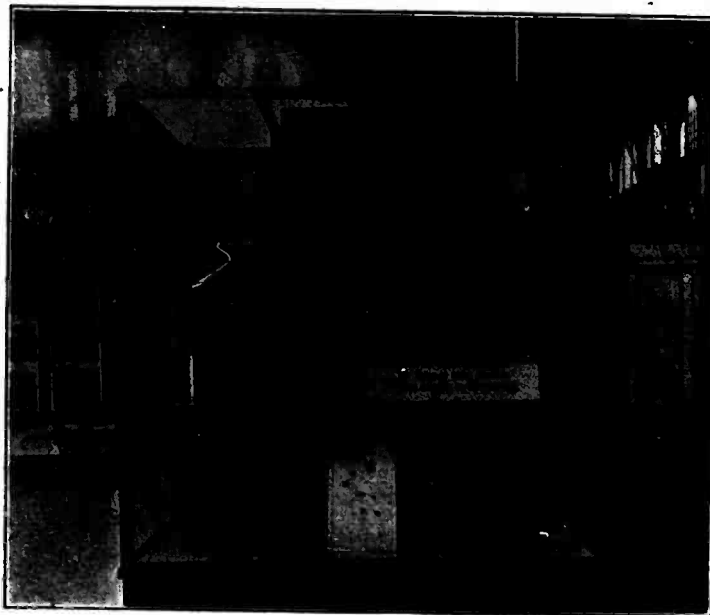


FIG. 42.—In the agonomy section.

wheat stood first, with a yield per acre of 43.9 bushels of grain, giving 10 barrels of flour with a 94 per cent value for bread making. Samples of Turkey and Kharkof wheat from different parts of Kansas were included in the exhibit to indicate the influence of soil types and rainfall on the character of the grain. Tabulated data, photographs, and samples illustrating the effect of blending Kansas hard winter wheat with California white winter wheat in bread making were shown, together with the chemical composition of these wheats and the proportions of the different mill products obtained from them. Samples of sorghums profitably grown for grain and forage in Kansas were included and data given which indicate that

sweet sorghum, as compared with corn and Kafir, gives a larger yield of silage as well as carbohydrates, and produces better gains in calves if fed with cottonseed meal.

The section of agronomy contained one case devoted to cotton contributed by the Clemson Agricultural College and Experiment Station of South Carolina. Specimens and photos were included of diseases affecting cotton, cotton wilt, and anthracnose, and of insects attacking the plants, such as the cotton root louse, cotton field ant, cotton-boll weevil, wireworms, and click beetles. Directions for their control were also given. Samples of sea-island and upland cotton were presented, and results of cotton breeding for the improvement of the lint brought out. Seven years of breeding work with blue-ribbon cotton, it was shown, have resulted in a marked improvement of the lint. The steps in the manufacture of cotton from the raw stock to the twisted yarn were illustrated by samples of the products and by-products. Samples of cottonseed products were included, showing crushed kernels, meal, flour, oleo oils, washing powder, paint, and shortening.

*Agricultural technology.*—The material in the section of agricultural technology referred especially to dairy manufactures and sugar-house practice. The College of Agriculture of the University of Wisconsin called attention to its courses in dairying and to the lines of instruction, embracing farm dairying, butter and cheese making, milk and cream testing, dairy mechanics, pasteurization, ice-cream making, factory accounting, starch making, dairy bacteriology, dairy chemistry, milk inspection, dairy breeding and feeding, city milk supply, and butter and cheese judging. Illustrations were shown of eight factory tests devised at the university, including the commonly known and widely applied Babcock test. In addition, charts and maps were presented showing the location of creameries, cheese factories, skimming stations, and condensers in the State, and statistics of production showing that Wisconsin produced one hundred and eighty million pounds of cheese in 1914 and that her annual production of dairy products amounts to over eighty-five million dollars.

The New York State College of Agriculture at Cornell University exhibited photographs illustrating the teaching of dairy industry, including views of the laboratories devoted to dairy testing, cheese work, marketing, milk studies, bacteriology, study of butter, and practices in the farm dairy.

The College of Agriculture of the University of Louisiana presented diagrams and photographs showing the relation between sucrose, reducing sugars and gums, in the fermentation of a 10 per cent sucrose solution, between Clerget single polarization and true

sucrose in the fermentation of a 10 per cent sucrose solution, and the relation between the actual deterioration of a sugar and its decrease in market value according to the basis of sale. The relation of sugars of cane juice to polarization at different stages and the comparative yield of cane sugar and available sugar in D7 and Louisiana purple were shown in diagrams. Sugar-cane diseases, such as root rot, red rot, stem rot, pineapple disease, and rind disease, were also shown in photographs.

*Forestry.*—In the section of forestry, maps, photographs, and diagrams were presented illustrating the methods and scope of forestry work by the Vermont Forestry Department, which is closely affiliated

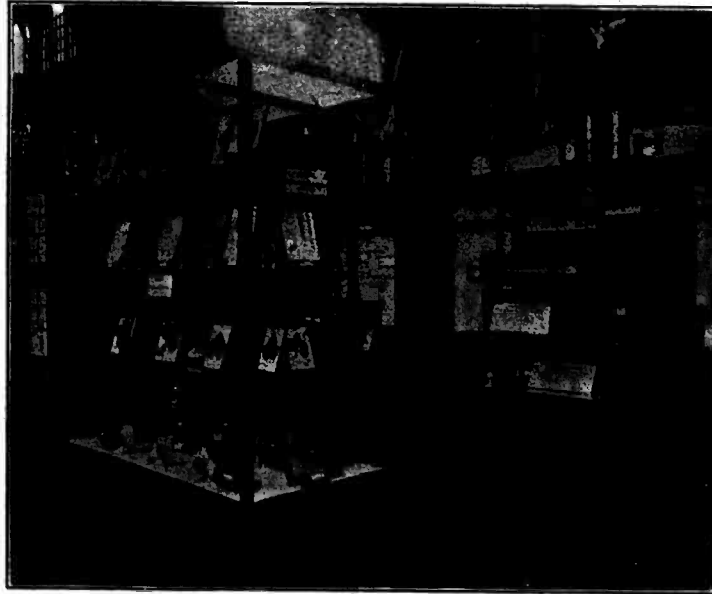


FIG. 43.—In the section of plant pathology.

with the University of Vermont. The location of State forests, places where lectures are held and where inspections are made, and points where 10,000 trees have been planted by private owners were shown by maps. Specimens of tree seedlings were included in the exhibit, and nursery studies and experiments on evaporation and transpiration, together with meteorological data affecting the same, nursery methods of seedling production, studies on eccentric growths, natural reproduction, rates of growth, yields of hardwoods and the like, were illustrated.

*Plant pathology.*—The section of plant pathology was illustrated through contributions made by the Massachusetts Agricultural Col-

lege. Photographs and specimens of different plant diseases were presented and demonstration mounts of plant disease materials were included. Cultures of pathogenic fungi, photographs of student laboratory work, and types of spraying nozzles used in disease control were also shown.

*Poultry production.*—The section in poultry production covered work done by the Oregon Agricultural College and Experiment Station. The central feature of the exhibit related to methods and results of breeding for increased egg production. Actual records, individual and flock averages at the Oregon station were given for a series of years, and a striking increase in production was shown. Many photographs were included of good and poor layers, with their progeny, affording an opportunity for studying types in laying hens. Results of individual trap-nest selections and cross breeding for a series of years were given in diagram.

It was shown that high fecundity is inherited. The importance, however, of environment, such as housing, feeding, and general management received considerable attention. There were 50 charts and many photographs, in addition to explanatory titles. In addition to this, an excellent stereomograph was operated as a part of the exhibit. A model colony house and trap nest used in poultry breeding work formed another part of the exhibit.

*Economic entomology.*—The section of economic entomology contained interesting experiments on grasshopper control as carried on by the Utah Experiment Station. These covered expert cultivation of the land, poison baits, and the use of mechanical devices, such as the "balloon" and grasshopper machines. The exhibit included also sugar-beet sprayers used in the campaigns against grasshoppers, sugar-beet army worms, and webworms.

## II. STATE EDUCATIONAL EXHIBITS.

Only about one-fourth of the States had exclusive educational exhibits in the Palace of Education. A few States had limited educational displays in the State buildings, while nearly all of the States exhibited excellent educational collections in the Agricultural, Liberal Arts, Fine Arts, and Manufactures Buildings, educational in the broad sense, although not to be classed with school education. The State displays generally centered about one or two educational problems at the present time before the public eye in the several States. The exhibits of greatest interest and value to rural people in the State collections may be organized for convenience under these heads:

1. Improvement of the one-teacher school through standardization and vitalization of school activities by means of industrial club work.
2. Establishment of effective farm community schools by means of school consolidation and organization of rural high schools.
3. Organization of State-wide State-aided agricultural extension work through special schools and special agricultural projects, the purpose being to combine in a practical way "learning" and "earning."

### IMPROVEMENT IN THE ONE-TEACHER SCHOOL.

*Standardizing the one-teacher rural school.*—In certain sections of the country where it is impracticable at this time to organize the one-teacher rural schools as centralized graded schools, a movement is under way to make the schools as effective as possible by improving their physical condition, including grounds, buildings, and equipment, organization for teaching purposes, and efficiency of teachers. This system of school improvement is popularly known as school standardization.

Several States had interesting exhibits illustrating school progress through standardization. Of these, Oregon perhaps had the most complete display, although the State was not the first to initiate the movement. Illinois was probably the first to undertake the standardization of its small one-teacher schools. The State department of



education, which in Illinois recognizes two grades of improved schools—standardized and superior—reported highly satisfactory results from what has been done in the State the past several years. Minnesota, although having no exhibit, makes the granting of State aid to schools contingent on certain high standards to be attained by the ungraded and semigraded rural schools. Texas has recently enacted a law providing State aid to weak schools in the form of \$1,000,000 for the next biennium, to be distributed on the standardization basis under the direction of the State department of education. Wisconsin, Kansas, Georgia, West Virginia, and Oregon are other States that have reported satisfactory results from State or county systems of rural school standardization.

*Vitalization of school activities by means of industrial club work.*— Many educators have despaired of making the one-teacher school sufficiently effective to provide country children the necessary education to give them a love of the farm environment and sufficient practical knowledge to enable them to make a good living by scientific farming. Without question, it takes more ability to teach effectively in a one-teacher school than to manage the large consolidated schools. Here and there over the country, where exceptional teachers of broad vision and good preparation are in charge of the small schools, much has been done in rallying community interests around the school and in doing some of the work for the farm and the farm home that the large schools are accomplishing. But in many sections the small schools continue to have little influence on the life of the people because their teachers, who are generally immature and inexperienced, must shift largely for themselves, without the advantage of close constructive supervision.

This great handicap is beginning to be overcome in some States by giving professional supervisors charge of the school subject instruction. In other States, the small schools are becoming vitalized through the organization of industrial clubs for school and home. These new industrial interests are infusing life into the teaching process in the small school and have done much to project it into the life of the farm people, making them feel that the school is established solely for its patrons.

The industrial work is bringing into the school field a new kind of supervision and a vital cooperation between the school and the home, and at the same time organizing all the small schools in the county, or even State, in a new community of interest. Industrial club work was given considerable space in several of the State school exhibits and also in a few of the educational exhibits in the State buildings. None perhaps emphasized this work in stronger terms than did Oregon.

## ESTABLISHMENT OF EFFECTIVE FARM COMMUNITY SCHOOLS.

*Consolidation of schools.*—School consolidation is no longer an experiment in the United States. In some form it is practiced in practically every State of the Union. Probably more than 10,000 real farm community schools have been established, many providing so thorough a system of education that it is no longer necessary for rural people to send their children away to school. The ideal which is described elsewhere in this bulletin under the United States Bureau of Education exhibit is approximated in many States. These schools should, if possible, be established in the open country or in rural-minded villages. They should have a large area of land for laboratory purposes. Besides this, it is desirable to establish teachers' homes in connection with the schools. The school should, where possible, be graded on the 12-year basis, providing for four years of agricultural high-school work. In addition to the courses for the boys and girls of ordinary school age, it is desirable to offer special short courses during the winter months for adults, to afford them inspiration and practical help in making the most of life.

The facts were presented graphically in several State exhibits. Utah had an exceptionally satisfactory exhibit on school consolidation, emphasizing particularly the benefits derived from county unit organization in facilitating school consolidation. California likewise showed interesting miniatures, sample work, curricula, etc., of its consolidated schools, partly in the Palace of Education and partly in the California State building. But, unquestionably, Indiana offered the most instructive lesson in school consolidation, devoting its entire booth in the Palace of Education to this subject.

*Rural high schools.*—High-school development has been comparatively slow in rural communities. Rural children are still largely obliged to look to town for their secondary school education. Only here and there is the high school an integral part of rural education. There is still too much of the feeling abroad that the rural child should get to work as soon as the traditional eight-year elementary-school course is finished. School consolidation, however, is doing much to modify the old standards. People are beginning to realize more and more that the demands on intelligence and technical preparation for life are at least as exacting in the country as for the average worker in town. To meet the new demands a variety of rural high schools are being established. They are variously known as district, township, and county high schools. The former may correspond to the ordinary school district organization, or may represent an entire congressional district, as in Georgia. Township and

county high schools, as the names would indicate, represent, respectively, their civil units of the same designation. Township high schools are common in New England and in some of the Middle Atlantic and Middle Western States. Kansas, Oklahoma, Utah, and several other Middle Western States have county high schools.

The most interesting exhibits of rural high schools were shown by Illinois, Utah, California, Indiana, and Virginia; some of these will be described below.

#### STATE-AIDED CONTINUATION SCHOOLS FOR AGRICULTURAL COMMUNITIES.

In the past agriculture teaching in elementary and high schools has seldom had the results desired, because of its bookishness and removal from the vital things in real agricultural life. The average farmer has had little confidence in the old system because he profited so little from it.

Recently a new kind of agriculture teaching is gaining recognition in many sections. This teaching, like the industrial club work mentioned above, projects the agricultural activities right into the farm life; but it is more comprehensive and thorough in organization, offering opportunities to earn money while mastering the science of the profession. The new system is really a continuation school, with educational opportunities to young people beyond ordinary school age as well as for adults, through well-organized agricultural schools and a variety of carefully supervised, State-aided home projects. The study is given in school and at home, and may be procured on full-time attendance, part-time, evening classes, and field-extension classes. The purpose of this State-aided agriculture teaching is to prepare definitely for self-support and skill. The most complete system of such continuation study in agriculture is found in Massachusetts.

These topics are described in detail below in the statements of the several State exhibits.

#### OREGON.

The Oregon exhibit was exceptionally complete, though limited to these three points: (1) Standard one-teacher schools; (2) industrial work in the schools; and (3) school play activities. The State department of education has accomplished excellent results for school improvement by standardizing small schools in those sections of the State where people are not yet ready for school consolidation. From the exhibits it is learned that Oregon school standardization began as a local plan in Polk County five years ago. Other counties readily

adopted the plan, and in 1914 at a convention held under the auspices of the State superintendent a plan was adopted for State-wide school



FIG. 44.—The Oregon education exhibit. The model in the foreground illustrates a "standard" school. Unusually attractive colored pictures showed typical activities of Oregon rural schools.

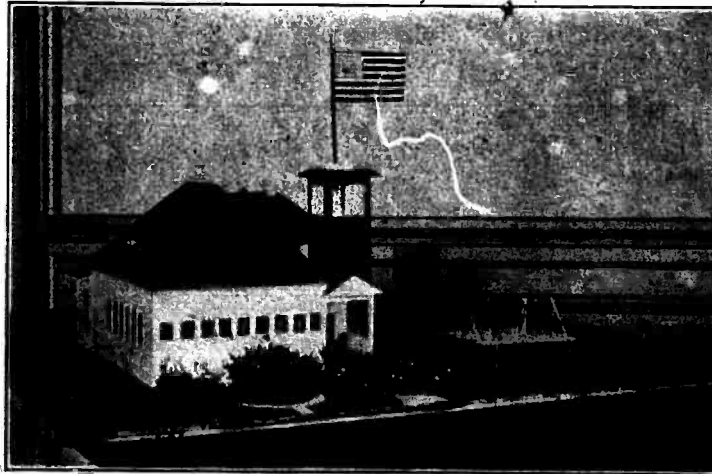


FIG. 45.—Model of Oregon standardized one-teacher school.

standardization. The standards are to be raised year by year, so that there shall be no stagnation.

The following is a list of requirements for 1914-15:

*Flag.*—Must be flying, weather permitting.

*Schoolhouse.*—Properly lighted.



FIG. 46.—The significance of the standard school: The plan in Oregon.

*Equipment.*—Teacher's desk and chair; desks for pupils properly adapted and placed; suitable blackboards; window shades in good condition.

*Heating and ventilating.*—Jacketed stove properly situated, minimum requirement; window boards or some other approved method of ventilating.

*Rooms.*—Attractive at all times.

*Standard picture.*—One new one, unless three are already in the room, framed.

*Grounds.*—To be clean, free from paper, etc. At least three features of play apparatus. Walks, if necessary.

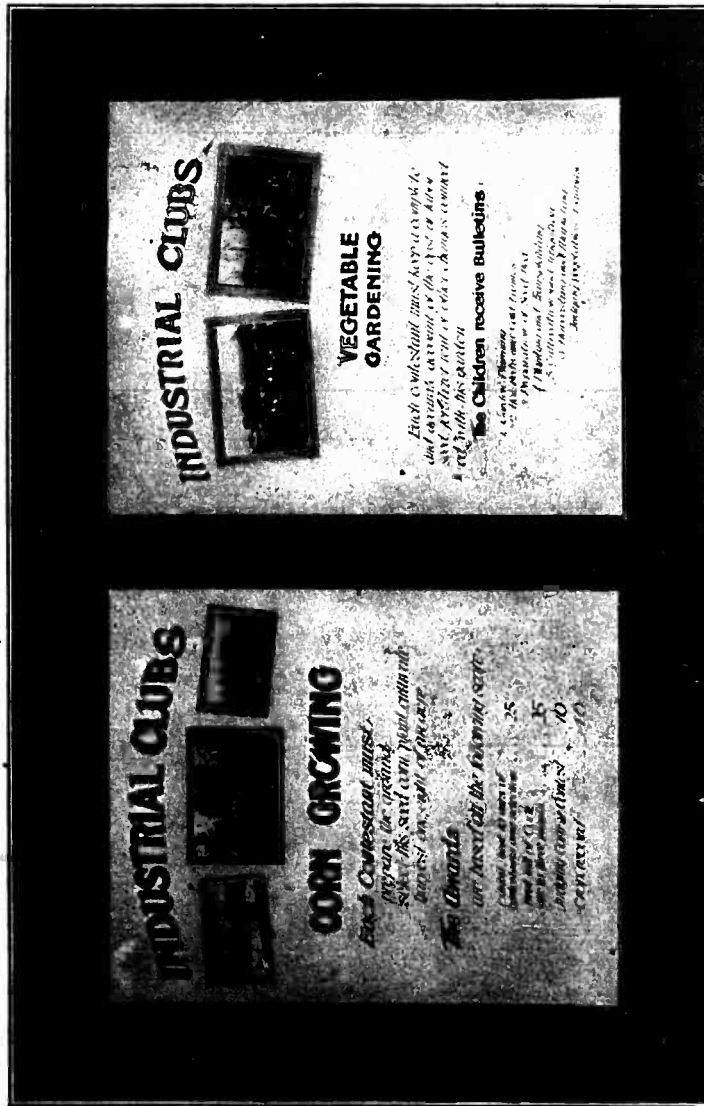


FIG. 47.—Illustrative of the Oregon industrial clubs.

*Sanitation.*—Pure drinking water; either drinking fountain or covered tank and individual drinking cups; individual, family, or paper towels.

*Outbuildings.*—At least two good ones, to be sanitary at all times and free from marks.

*Teacher.*—Must maintain good order at all times; supervise the playground; have her work well prepared; follow State course of study; take at least one educational journal; have program posted in room; keep register in good condition; be neat in attire.

*Library.*—Good selection of books from State list. Case for the books. Books kept upright, in good condition, and recorded according to rules specified by Oregon State Library and required by law.

*Attendance.*—Average 92 per cent for year and not to exceed 2 per cent in tardiness for year.

*Length of term.*—Not less than eight months of school each year.

Mr. J. A. Churchill, superintendent of public instruction, has stated the purpose of the Oregon plan of school standardization briefly in the following language:

A standard to which each rural district must bring its school, a measuring rod whereby the farmer may be convinced that he has not as a rule been pro-

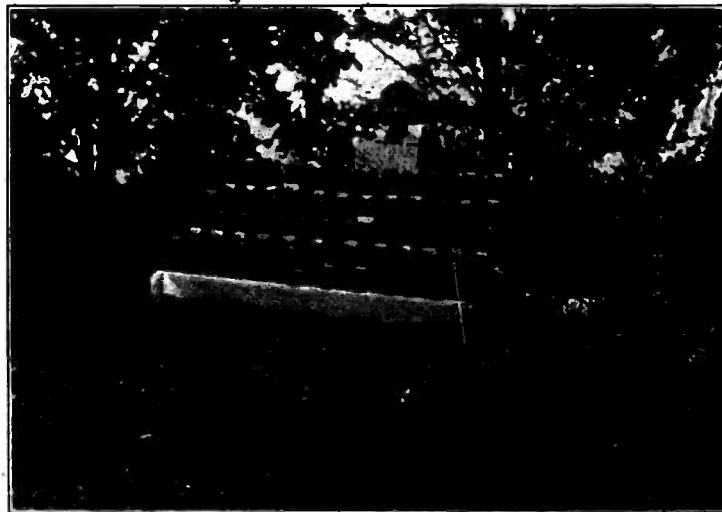


FIG. 48.—An Oregon girl in the canning projects.

viding house and grounds equal to those for his cattle and horses, that he has not been demanding the same grade of efficiency of the rural teacher as he has of his hired hands, this is the plan which is making the work of the rural school in Oregon effective. It was begun in Polk County some five years ago.

*Boys' and girls' industrial club work.*—This well-known form of agricultural education in Oregon is noteworthy, because the State has avoided the fundamental difficulty with which similar clubs have met in some sections, by centering the organization in the State department of education, thereby making it an important phase of school education, instead of allowing purely industrial agencies to direct its organization. Of equal importance is the fact that the

industrial clubs of Oregon are organized so successfully that they are already becoming the means of vitalizing the work of the small schools. Says State Supt. J. A. Churchill:

Through these clubs, the standard school plan, and the playground movement the rural schools of Oregon are developing a happy, healthy, efficient

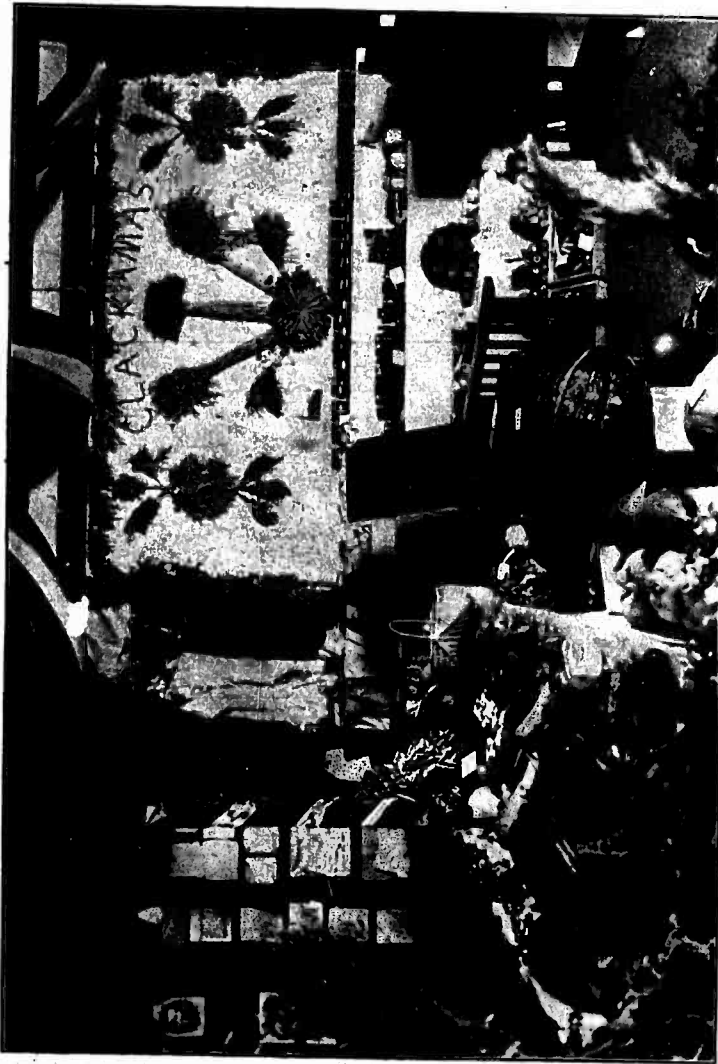


FIG. 49.—Boys' and girls' club exhibit at an Oregon county fair.

group of boys and girls in every section of the State, who are going to revolutionize country life in this State and make the farm home the most delightful place to live.

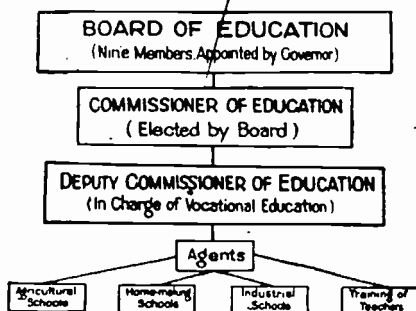
The work of organization is done by the State department of education through two assistants, who devote all their time to organizing



clubs, holding community meetings, local industrial fairs, etc. The State Agricultural College lends assistance by publishing bulletins for the guidance of the club members. The United States Department of Agriculture is a third cooperating agent, which assists in planning the work, sends occasional speakers to important club rallies and the like. But the important fact remains that the work has grown outward through the schools, binding them intimately to the farm homes. Twelve thousand rural children were club members the past year.

THE COMMONWEALTH OF MASSACHUSETTS.  
STATE-AIDED VOCATIONAL SCHOOLS.

STATE ADMINISTRATION OF  
VOCATIONAL EDUCATION



DUTIES

Supervision of State Expenditures for Maintenance  
in State-Aided Vocational Schools

Definition of Standards of Instruction

Approval of Courses, Teacher, Pupils, Advisory Committee

Advise and Assist in the Establishment of New  
Schools of Vocational Types

FIG. 50.

A few of the club projects for boys and girls are:

1. *Canning.*—The canning of fruits, vegetables, etc., for home use or for sale. Enrollment not later than March 15, 1915.
2. *Vegetable gardening.*—The growth of the greatest possible amount of vegetables at the least possible expense. Division I. A garden area of at least 1 square rod but not more than 15 square rods. Division II. A garden area of at least 16 square rods. Enrollment not later than March 15, 1915.
3. *Poultry raising.*—Division I. The care and management of five or more laying hens for a period of at least six months. Enrollment not later than

January 1, 1915. Division II. The incubation of at least three settings of hen's eggs and the care and management of the chicks for a period of at least eight months. Enrollment not later than March 15, 1915. Division III. The management, for breeding purposes, of two turkey hens and one gobbler. Enrollment not later than March 15, 1915. Division IV. The incubation of at least one setting of turkey eggs and the care and management of the young turkeys for a period of at least six months. Enrollment not later than March 15, 1915.

4. *Dairy herd record keeping*.—Obtaining the milk, butter fat, and feed record of two or more cows for a period of at least eight months. Enrollment not later than January 1, 1915.

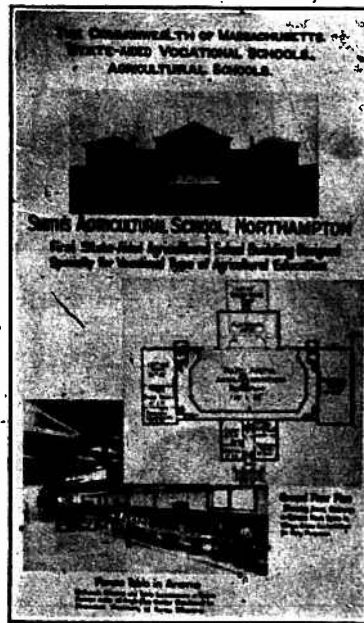


FIG. 51.—In the Massachusetts exhibit.

#### MASSACHUSETTS.

Massachusetts had an exceptionally complete and instructive exhibit of its system of State-aided vocational education. No other State probably has been quite so successful as Massachusetts in the organization of vocational education for all its people, whether they live in town or in the country. These schools comprise not alone day schools for boys and girls, but part-time schools for young people, between 14 and 16 years and also evening schools for men and women.

The effectiveness of the Massachusetts system of vocational education is due in large measure to a carefully organized system of administration. The deputy commissioner of education is in direct charge

of all vocational education. Through him State agents supervise all the agricultural schools, home-making schools, industrial schools, and teacher-training courses established under the vocational education law.

*State-aided vocational agricultural education.*—Of particular interest to the present discussion are the State-aided agricultural schools and agricultural departments in selected high schools. These comprised a most striking part of the Massachusetts exhibit in the form of graphic charts, photographs, stereomotographs, and an illuminated profile map illustrative of home project work. At

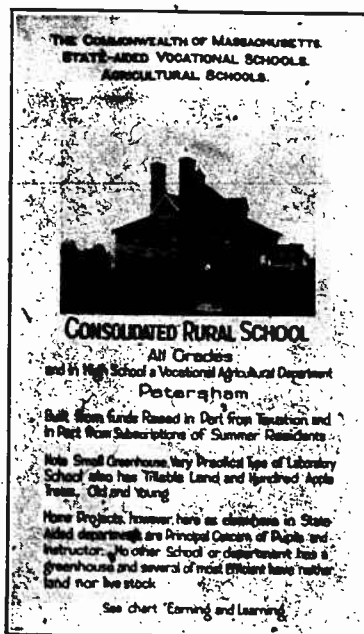


FIG. 52.

the present time four separately organized agricultural schools and nine agricultural departments in high schools are receiving State aid.

The schools are organized to meet the needs of three kinds of pupils: All-day pupils, part-time pupils, and evening pupils.

*All-day pupils.*—Boys and girls, 14 to 16 years of age, who devote the entire day to study and project work. One-half of their time is devoted to productive agricultural work, mainly supervised home projects; 30 per cent is devoted to studies bearing directly upon their daily tasks, and the balance of their time is devoted to the general culture subjects.

*Part-time pupils.*—Young men engaged in farming who devote part of the day or part of the week to school work, all of it with a direct bearing on the regular employment.

*Evening pupils.*—Limited to persons over 17 years of age who are regularly engaged in productive agriculture. This group comprises dairymen, truck farmers, fruit growers, etc.

*Pupil activities.*—The most important are home projects, of which there is a large variety, all the work being done under the immediate direction of the school instructors. The following are illustrative:

| School or department location. | Pupil's age. | Project or projects (title and scope).                              |
|--------------------------------|--------------|---|
| 1                              | 2            | 3   |
| Harwich.....                   | 16           | 1/2 acre garden; 60 hens.   |
|                                | 18           | 1/2 acre garden; 65 hens.   |
|                                | 20           | 1/2 acre garden; 27 hens.   |
|                                | 18           | 1/2 acre garden and orchard; 15 ducks, 6 hens, 1 cock.              |
|                                | 17           | 1/2 acre garden; 20 hens.   |
| North Easton.....              | 16           | 18 Barred Rock hens; 6,000 sq. ft. garden.                          |
|                                | 19           | 35 Reds and Rocks; 2 cows; 1 calf; 1,200 sq. ft. potatoes.          |
|                                | 17           | 11 hens, 40 chicks (summer work).                                   |
|                                | 14           | 1/2 acre potatoes and cabbages.                                     |
|                                | 16           | 14,499 sq. ft. garden; 4,500 sq. ft. potatoes; 28 hens, 115 chicks. |

School projects are of two kinds—conducted by the school for demonstration purposes and conducted by the pupils on land provided by the school.

*"Earning and learning."*—In this carefully planned and supervised scheme the pupil earns as well as learns. He must make written reports and keep careful accounts of all outlays and receipts. The following list gives the earning of the schools for the year 1914:

*Enrollment and earnings of Massachusetts vocational schools in 1914.*

| Vocational agricultural schools or departments. | Enrollment. |        |        | Earnings.  |             |              |
|---|-------------|--------|--------|------------|-------------|--------------|
|   | Boys.       | Girls. | Total. | Farm work. | Other work. | Grand total. |
| SCHOOLS.  |             |        |        |            |             |              |
| Northampton.....                                | 19          |        | 19     | \$3,923.01 | \$324.42    | \$4,247.43   |
| Bristol County.....                             | 24          |        | 24     | 1,546.72   | 77.70       | 1,624.42     |
| Brimfield.....                                  | 16          |        | 16     | 4,018.07   | 91.56       | 4,109.63     |
| Essex County.....                               | 71          | 3      | 74     | 11,691.40  | 1,631.26    | 13,322.66    |
| DEPARTMENTS.                                    |             |        |        |            |             |              |
| Petersham.....                                  | 9           |        | 9      | 2,436.83   | 168.90      | 2,605.73     |
| Hadley.....                                     | 8           |        | 8      | 1,070.95   | 168.28      | 1,239.23     |
| Northborough.....                               |             |        |        |            |             |              |
| Harwich.....                                    | 9           | 1      | 10     | 2,872.18   | 555.66      | 3,427.84     |
| North Easton.....                               | 18          |        | 18     | 1,621.07   | 379.90      | 2,000.97     |
| Ashfield.....                                   | 16          |        | 16     | 2,857.78   | 183.54      | 3,041.32     |
| Sutton.....                                     | 8           | 1      | 9      | 1,392.51   | 287.30      | 1,679.81     |
| Concord.....                                    | 22          |        | 22     | 3,607.59   | 71.78       | 3,679.37     |
| Marlborough.....                                | 10          |        | 10     | 1,498.55   | 203.95      | 1,702.50     |
| Total.....                                      | 230         | 4      | 234    | 37,936.67  | 4,124.06    | 42,060.73    |

*Supervision.*—Much of the success of the Massachusetts system is due to the thoroughgoing supervision employed. The State supervisor cooperates closely with each local instructor in securing the highest degree of productive efficiency for the pupils. The instructors who teach the subjects in the schools supervise that particular project. In addition the law provides for the appointment of an advisory committee of farmers, who are of great assistance in furnishing practical advice and in popularizing the agricultural projects in the community.

The Massachusetts vocational schools are successful in reaching all the people in the Commonwealth. They appeal especially to

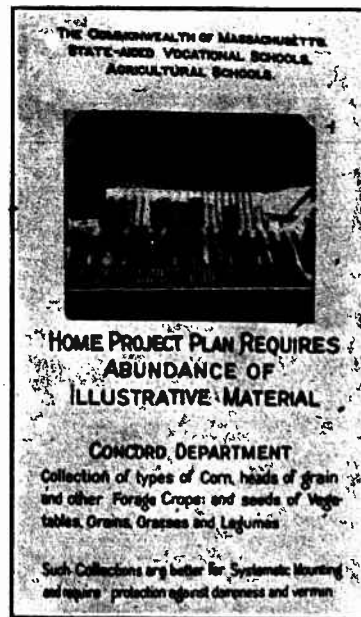


FIG. 53.

young people who have left the public school at too early an age to be effectually prepared for life responsibilities because the school had failed to make vital appeal to them or because the school had offered no particular preparation for suitable life callings.

#### INDIANA.

The Indiana booth was given over entirely to school improvement through school consolidation. It included artistically arranged transparencies devoted to community activities, centering about the well-organized Indiana consolidated schools and school architecture, showing graphically the change from the small pioneer schools to

the modern farm-community graded and high schools. A corner was devoted to strikingly arranged miniatures of two school communities before and after consolidation. In addition to this there was a good display of handwork from the consolidated schools, besides a stereomograph with alternating sets of "slides" on consolidated schools, activities in these schools, and means of preparing teachers for the schools.

*Progress in rural school consolidation.*—Indiana affords a good example of what progressive legislation can do to promote school reorganization by means of consolidation. Indiana has to-day, next to Louisiana, the largest number of consolidated schools and, on the basis of effectiveness, the largest number of all the States. The first of these laws, passed in 1899, made provision for free transportation of children living 2 or more miles from the nearest school; the second law (1900) required the township trustees to abandon all small schools with less than 12 pupils and pay for their transportation to some other school; the third law (1907) made it mandatory for trustees to provide transportation for pupils attending consolidated elementary schools.

The State department of public instruction has compiled the following statistics, which tell in a striking way the growth of school consolidation in Indiana:

## CONSOLIDATED SCHOOLS IN INDIANA.

|   | In 1910.   | In 1914.     |
|---|------------|--------------|
| Number of consolidated elementary schools.....  | 160        | 290          |
| Number of consolidated high schools.....  | 31         | 36           |
| Number of consolidated combined elementary and high schools.....  | 235        | 339          |
| <b>Total</b> number of consolidated schools.....  | <b>426</b> | <b>665</b>   |
| Number of pupils transported to consolidated schools.....   | 10,051     | 26,403       |
| Total cost of transportation.....   | \$155,390  | \$491,265    |
| Average cost of transportation per pupil transported.....   | \$19.66    | \$19.63      |
| Number of pupils enrolled in consolidated schools.....  | 29,215     | 73,404       |
| Percentage of the total number of pupils enrolled in all rural schools in consolidated schools.....per cent.. | 24.5       | 35.9         |
| Percentage of the enrollment in consolidated schools in the high school.....per cent..                        | 17         | 22.25        |
| Number of abandoned schools reopened this year.....   |            | 38           |
| Number of abandoned schools reopened during the past five years.....  |            | 194          |
| Number of schools (not consolidated) abandoned this year.....   |            | 210          |
| Number of schools (not consolidated) abandoned during the past five years.....                                |            | 916          |
| <b>Total</b> number of abandoned school districts in the State at the present time.....                       |            | <b>1,003</b> |

|  | In 1910. | In 1914. |
|--|----------|----------|
| Total number of district schools at the present time.....            |          | 5,635    |
| Average number of pupils per teacher in consolidated schools.....    |          | 28       |
| Average number of pupils per teacher in all other rural schools..... |          | 22       |
| Average tuition cost per pupil in consolidated schools.....          |          | \$18.45  |
| Average tuition cost per pupil in all other rural schools.....       |          | \$18.00  |
| Average total cost per pupil in consolidated schools.....            |          | \$25.04  |
| Average total cost in all other rural schools.....                   |          | \$22.71  |
| Average daily wage of teachers in consolidated schools.....          |          | \$3.37   |
| Average daily wage of teachers in all other rural schools.....       |          | \$2.76   |

## UTAH.

*The Utah booth.*—The Utah educational exhibits were organized to emphasize rural and agricultural education, as the State is largely rural. The center of attraction was the unique "Beehive" structure shown above, with its rest room, around which were ranged a variety of exhibits—miniature school plants, collections of school work, a stereomograph, etc. A large profile map of the State shown at the right of the "Beehive" gave the location of the important higher educational institutions, a statement of the State's natural resources, and other interesting data. In addition to the elementary and secondary school displays in the "Beehive," the University of Utah and the State College of Agriculture had worthy exhibits of their varied activities. The latter emphasized in a graphic manner the work of the college (teaching young people how to live), the activities of the experiment station (investigating the agricultural industries), and the campaign carried on by the extension division (taking education to the people).

The following are educational facts gleaned from some of the graphic charts:

Utah uses 86 per cent of the State's tax revenue for educational purposes; has a commission to approve plans and specifications for school buildings; has good buildings, good schools, and, best of all, good teachers.

Utah is making a determined effort to adapt the work of the public schools to the *actual needs* of the people.

Utah is bringing parents into the school through parent-teacher associations, and in some communities is maintaining night schools.

Utah's county unit plan—the equalizer of opportunity. Every revision of the tax laws makes the education of every child more and more the business of the State.

*County unit organization.*—A new county unit law has recently gone into effect in the State which marks a new era in its educational history. The act is often spoken of in Utah as the "State-wide consolidation law," a term somewhat confusing to people who are accustomed to think of consolidation as a process of bringing together

a number of weak schools into one strong centrally located school. In Utah, consolidation refers to the union of all common and high-

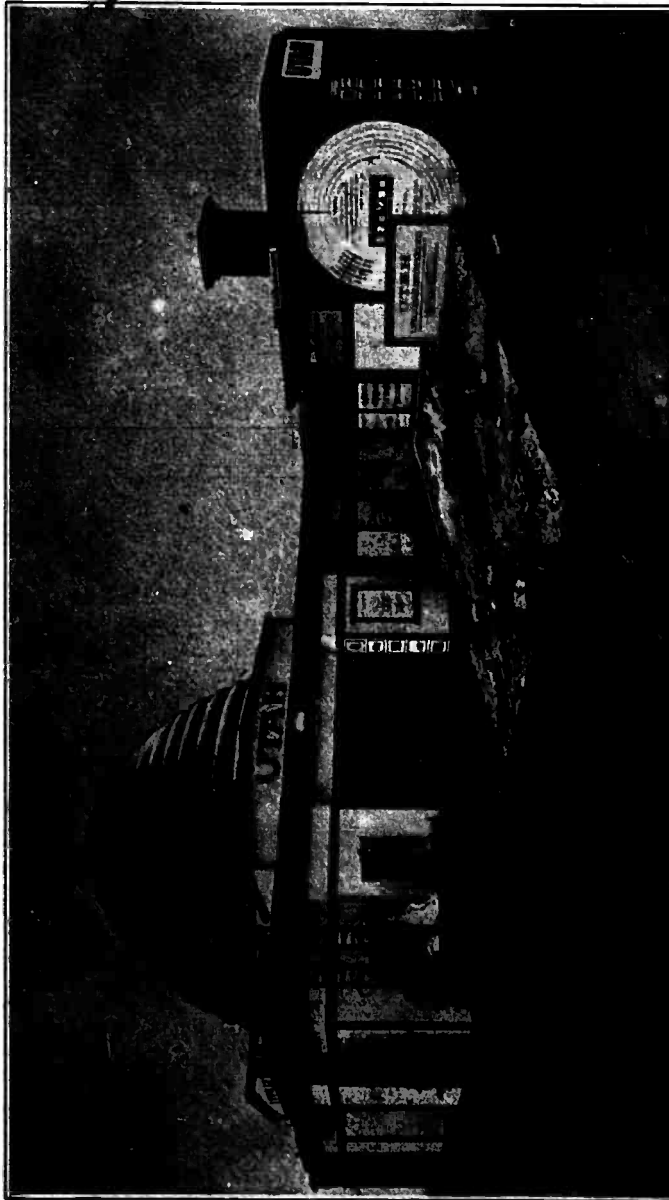


FIG. 54.—General view of the Utah exhibit.

school districts in the county into one new county-wide school district, regardless of whether or not the schools within the county are



reorganized. The cities of the first and second class and a few large districts organized under a former act are exempt under the new law.

The most important provisions of the act of 1915 are: (1) The office of county superintendent and the old school trustees are abolished; (2) a new county board of education, consisting of five members chosen from as many election precincts, supplants all former school officials; (3) members of the new board of education are elected for a term of four years and receive a fair compensation for their work; (4) a professional district superintendent is appointed by the board to have charge of the professional management of the schools; (5) the district board has full control of all the schools



FIG. 55.—Model of the Jordan High School in the Utah exhibit.

within the district, which includes such important duties as closing unnecessary schools, organizing new elementary and high schools, regulating the teaching practice, the salaries of teachers, etc.

The county unit act has given Utah a modern system of school organization. Educational advantages have been equalized. Under the new system the county is the unit of taxation, and all the schools of the county fare alike, whether located in the rich irrigated valleys or up under the dry mountain sides. The old waste through duplication of school effort is minimized and modern supervision is becoming realized.

*Rural high schools.*—Utah is a State of compact communities. The people live largely in the irrigated valleys, in homes clustered about the village churches and schools. The unirrigated sections are largely barren and without organized life. Because of this, small one-teacher schools have never been numerous in the State, and indeed, at the present time there are less than a dozen such schools left. Graded schools of high character are found in all the organized communities.

The greatest appeal to outsiders is the State's system of rural high schools. The Utah exhibit contained a miniature of the new Jordan High School, which typifies this group of institutions. The school lies in the Jordan District, one of the two divisions into which Salt Lake County is divided. This organization, it should be understood, came about under an earlier law. The accompanying map

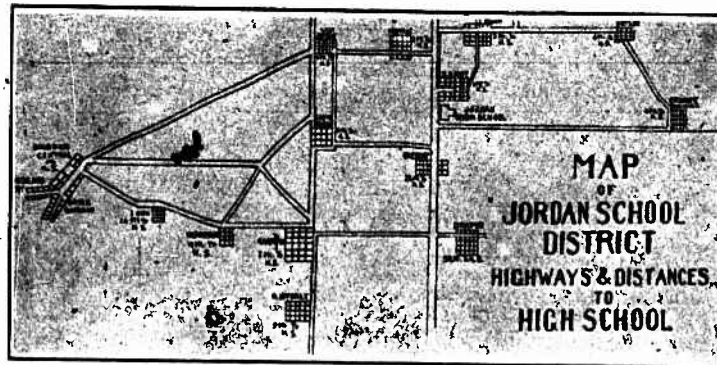


FIG. 50.—Map of Jordan school district.

makes clear that the Jordan school district embraces a number of villages, each with its own graded elementary school.

It may also be seen that the Jordan High School lies in the open country, and the children are conveyed to school from the towns of the community by stage and other means.

The main building, which has cost \$165,000, lies in a campus of 23 acres, devoted to agriculture and athletics. The main building is 235 feet long and 166 feet wide. It contains 30 large well-lighted rooms, adapted to high-school activities. The auditorium has a seating capacity of 900 people. The building is arranged for social and physical activities of all kinds. A small dairy farm is maintained and there is a comfortable home for the principal at one corner of the campus and a home for the agriculturist at the other. The most interesting thing about this community school is the fact that it receives children from all the surrounding towns.

The proper scope of the school's activities can best be appreciated from the first year's registration by classes: Music, 147; sewing, 116; cooking, 78; science, 117; mathematics, 188; English, 337; oral expression, 78; stenography, 15; typewriting, 51; bookkeeping, 60; German, 52; history, 45; review of common subjects, 13; woodwork, 118; sociology, 32; drawing, 24; agriculture, 120; physical education, 231.

Utah has actually reversed the system in vogue in most parts of the country and is sending village children to high schools in the open country, instead of sending them from the country to town schools.

#### ILLINOIS.

The Illinois educational exhibit emphasized the six units of organization which present the range of educational activities in this State. One example of each of these was presented in model form. The educational units of interest to the present discussion are the one-room rural schools, the consolidated rural schools, and township high schools.

The miniature one-room rural school illustrated the modern sanitary type of school advocated by the State department of education for the "standard" and "superior" schools of the State.

Nearly two thousand such buildings have been constructed in Illinois in recent years. This system of standardization has been very effective in correcting prevailing architectural faults. It has been instrumental in placing better prepared teachers in the schools and has done a great deal to enrich the course of study.

The Rollo Consolidated School, reproduced in miniature below, has received considerable attention in Bureau of Education publications, and needs only passing mention here. It is a great community institution, which has been able to attract into school all the large boys and girls who formerly dropped out of school for lack of interest. It has, indeed, drawn the entire community closer together by bonds of common interest. In a word, it strives to help all the people in the community and has, indeed, succeeded in what it has undertaken.

The miniature of the Peru-La Salle Township High School showed definitely how Illinois is doing much to place high-school facilities within reach of all the children of the State. This particular plan is exceptionally complete in every way and is used coordinately by all the children of the congressional township, rural as well as urban. The high-school enrollment is about 400 pupils. Some other township high schools in Illinois enroll as high as 1,000 pupils. In

1911 a modified type, or district high school, was provided. This high-school law has largely stimulated the organization of such



FIG. 57.—The Illinois exhibit.

schools, there being now more than 120 township and district high schools in the State.

## WISCONSIN.

The rural and agricultural phases of the Wisconsin educational exhibit were limited in the main to library work in the rural schools and university extension as it is promoted by the University of Wisconsin.

The library exhibit included a typical rural school library and numerous graphs, charts, and photographs showing in detail what is being accomplished in this field of work.

The State provides for the maintenance and growth of school libraries by setting aside annually 10 cents for every person of school

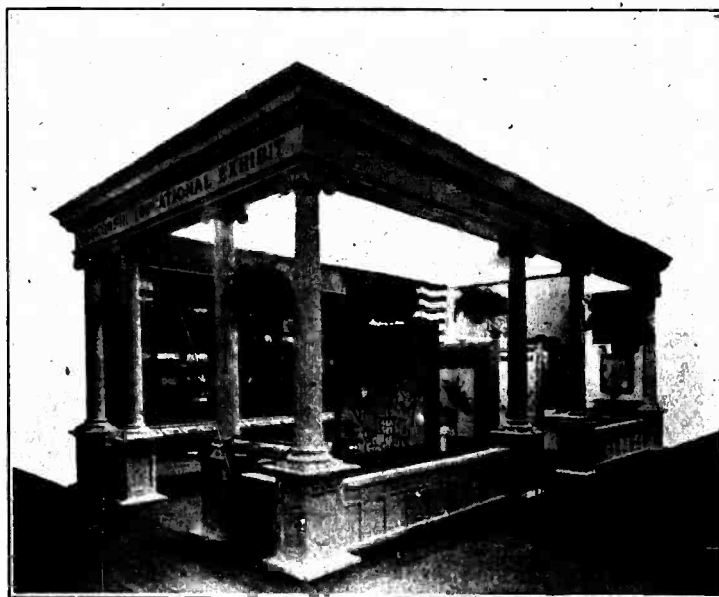


FIG. 58.—The Wisconsin booth.

age in towns, villages, and cities of the fourth class, to be expended for library books for the country districts. The State's public-school libraries have grown rapidly in recent years and now number fully 1,600,000 volumes. In 1887 the rural and village schools had only 30,563 volumes in their libraries. That year an optional library law was enacted with the result that by 1895 the number of books had increased to 114,000. This law became mandatory in 1895, and by 1903 the number of books had reached 600,000. During the next 10 years the library movement took on exceptional proportions. In 1913 there were 1,327,584 volumes in the rural and village schools, having cost the State \$671,874.

*University extension service.*—The University of Wisconsin has demonstrated its efficiency as a public educational institution by endeavoring to reach all the people of the State. A unique electric flashing map in the Wisconsin exhibit showed strikingly how it covers the entire State with important forms of extension service, classed as correspondence study, lectures and concerts, package libraries, and general welfare service.

The increase in the extension service for the years 1912 and 1913 was graphically shown in a series of other maps. Up to January 28, 18,529 persons had registered, 6,099 of these having completed their courses. On the same date there was a total active registration of 7,113.

The correspondence-study department is intended for two types of students: (1) Those doing work for university credit, and (2) those who are taking work for vocational purposes or for information only. In the university credit class, 3,076 have registered and 1,206 have completed the work. In the vocational class, 12,914 have registered and 4,496 have completed their courses. This important work includes correspondence courses for rural teachers, and courses for farmers whose work keeps them so closely confined that they can not attend regular university short courses or institutes. In regard to the correspondence courses for rural teachers, the exhibit circular has this to say:

Notwithstanding the fact that a large number of the educational needs of rural-school teachers are now available in the correspondence and other departments, utilization is not as great as it should be. The problem of reaching, inspiring, and organizing these isolated rural-school teachers, while they are actually teaching and meeting real problems, is inherently difficult. From experience in other fields, university extension correspondence methods offer, perhaps, the most economical means of increasing the educational and professional attainments of such teachers. To secure the maximum benefit in a minimum length of time it would be necessary to increase the work of organization and field service.

The package libraries "furnish anyone, anywhere in Wisconsin, the best and latest available publications on all sides of any perplexing question." The libraries contain many thousand classified articles, on several thousand subjects, in the form of magazine or newspaper clippings, pamphlets, typewritten excerpts, etc., which are sent free, upon request, to all citizens of the State. The package libraries offer another excellent means of education in rural communities.

The social center propaganda has made great headway in Wisconsin, chiefly through the system of lectures, concerts, and entertainments provided by the university, which are carried to the people at actual cost. During the past two years 370,750 people in 525 different communities have taken advantage of this service.

The official circular of the Wisconsin exhibit summarizes the scope and purpose of this extension service in the following language:

OPENS NEW FIELDS FOR MISFIT WORKERS.

University extension helps—

*Correspondence study.*—By taking university classroom opportunities, at the time when the need is most keenly felt, to the man or woman who is on the job and therefore unable to come to the university.

*Packet libraries.*—By furnishing anyone, anywhere in Wisconsin, with the best and latest available publications on all sides of any perplexing question.

*Lecture service.*—By extending the educational and cultural opportunities of the larger city pulpits, platforms, and concert stages to any community in the State.

*General welfare.*—By furnishing practical information to the people of Wisconsin in the practical solution of their welfare problems—leading to the cure and prevention of pauperism and crime, and to adequate provision for community promotion, recreation, and other local needs.

*Municipal service.*—By affording to public servants and others facts concerning the experience of similarly situated municipalities; and by furnishing expert engineering and other technical assistance which would otherwise be available to only the larger municipal corporations.

*Social centers.*—By promoting the use of public buildings by the entire public for educational, cultural, and recreational purposes.

*Health instruction.*—By teaching in easily understood terms the dangers and the methods of avoiding preventable human disease, needless suffering, and premature death.

*Visual instruction.*—By collecting and circulating educational lantern slides, moving pictures, and written lectures to schools, societies, clubs, and other organizations.

*District organizations.*—By providing the connecting link between the "man who knows" and "the man or woman who needs to know."

IOWA.

Iowa had no organized State educational exhibit in the Palace of Education. The State College of Agriculture, however, had an instructive exhibit which occupied a large booth adjoining the United States Government exhibits. The central theme was agricultural education and what it means to the State. By means of photographs and legends, it illustrated the work that the agricultural college is doing in preparing teachers of agriculture and principals of Iowa's new consolidated schools; in horticulture and forestry; in agricultural journalism; and in dairying, agricultural extension, farm management, farm crops, animal husbandry, and soils.

The section of the booth devoted to teacher preparation gave in outline the comprehensive course of study for teachers pursued at the college. This was illustrated by numerous photographs of school activities.

The section on horticulture and forestry contained a number of instructive activities mainly in the form of photographs and drawings.

The course in agricultural journalism was outlined in detail. The purposes of the course were—

1. To apply to agriculture the news style of writing—unexcelled in clearness, conciseness, interest.
2. To make all trained agriculturists contributors to the press, thereby multiplying their usefulness.
3. To give some technical training to students who plan to enter agricultural journalism.
4. To suggest ways of increasing business among farmers.
5. To demonstrate methods for getting better printing results.
6. To conduct a newspaper make up and printing contest.
7. To present a country newspaper and printing exhibit.

The section on dairying contained suggestive photographs of dairy activities in the State. The dairy short course at the college was attended by 143 butter makers, representing 13 States; 804 students pursued work in dairying subjects during the past year.

The section on agricultural extension contained a graphic exhibit in the form of a map showing that the State college had held 955 farmers' institutes and other meetings during the past year and 44 farm investigation tours. The remarkable extension work through boys' and girls' clubs was also presented in a State map giving the club membership in the different counties at 18,000. The activities included in the club work were corn clubs, garden and canning clubs, baby beef clubs, baby pork clubs, manual training, and domestic science clubs. The extension activities of the State college carried on among the school children and others beyond ordinary school age are quite remarkable.

The section on farm management contained a graphic chart giving five excellent reasons for renting Iowa farms on the stock share plan instead of on the old cash basis.

The section on farm crops, animal husbandry, and soils gave interesting sectional views of how this work is done at the State college.



### III. RURAL EDUCATION IN THE TERRITORIES AND INSULAR POSSESSIONS.

It is regrettable that all the Territories and insular possessions of the United States were ~~not~~ represented at the exposition through typical school exhibits. The work among the natives of Alaska was shown graphically in an exhibit collected by the United States Bureau of Education, while the Philippine Islands had a very complete exhibit prepared by the director of education in the Philippines and his assistants.

The Territory of Hawaii reported a school enrollment of 33,288 pupils in all its schools in 1913-14, distributed among natives and residents of foreign origin, with a teaching force of 713 instructors, of whom 200 are American. During the school year of 1914 \$742,310 was expended for education, or about \$30.36 per pupil. Recently the Hawaiian school system has begun to emphasize the preparation of its pupils for the various life vocations in the islands. The insular department of instruction is using all its wisdom and effort to organize this new system of industrial education. Under these circumstances it is unfortunate that this interesting experiment in school reorganization in the insular possessions should not have had an educational exhibit to show the evolution of the new from the old system, prevailing before the islands became annexed to the United States.

Porto Rico also has valuable lessons to teach in the remarkable progress that it has made in recent years in modifying its rural school system to meet the needs of its rapidly increasing population. During the year 1914-15, \$2,498,585 was expended for school education of all kinds. The school enrollment was 270,000, being slightly more than 50 per cent of the school population. These pupils were instructed by 2,564 teachers, in 4,330 schools. The evolution of the Porto Rican rural schools is of particular interest to educators of the United States. Since the time of the American occupation in 1908 all the school buildings have been practically renewed. Frame and concrete one and two teacher buildings have replaced most of the former dilapidated, usually rented, structures. The agricultural phases of education, particularly, have received much attention. Forty-one special teachers have recently been appointed—one for

every supervision district—to have charge of the organization of agriculture, home and school gardening, and industrial club work of all kinds. This makes one such special teacher for every supervision district of the islands. Under the direction of these specialists home and school gardens are making much advance. School fairs and agricultural exhibits are frequent in connection with rural schools. These fairs have awakened much interest in communities formerly untouched by such phases of school education. Porto Rico, like Hawaii, unfortunately was not represented educationally at the exposition.

#### ALASKA.

The exhibit of Alaskan education was limited to activities of the United States Bureau of Education among the natives, all of which



FIG. 59.—School gardens and garden products from the Alaska educational exhibit.

may be classed as rural. The schools in Alaska, other than native schools, are under the control of the Territorial governor, who issues certificates to teach and in other ways oversees the educational affairs. These schools are of two kinds—the so-called Nelson schools outside of incorporated towns, for white children and children of mixed blood leading a civilized life; and the schools for whites within incorporated towns.

*Wide scope of the schools for natives under United States Bureau of Education control.*—The natives of Alaska number approximately 25,000 people, distributed among numerous small villages scattered along thousands of miles of coast line and the great rivers. These

villages are isolated from one another and the outside world for fully eight months of the year, on account of the extreme severity of climatic conditions. But in spite of these almost insurmountable difficulties, United States schools have been established in 77 such native villages. The work of the Bureau of Education among the natives is very comprehensive and may be classified as—

School education for children and school extension work for adults.

Social economic activities dealing with personal hygiene, home sanitation, and morality; household arts, social intercourse, and promotion of native industries. Medical work and the stamping out of disease.

Reindeer service, primarily to provide a source for supply of food and clothing to the Eskimos living in the vicinity of Bering Strait.

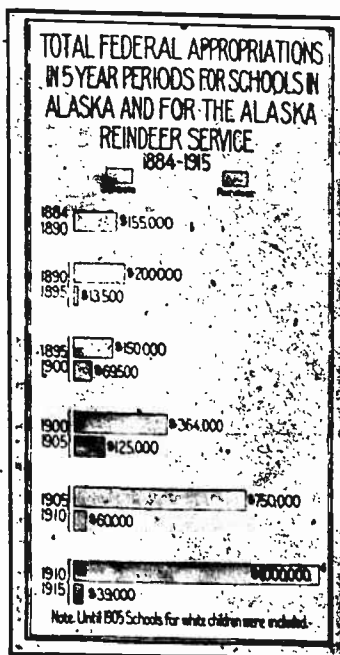


FIG. 60.—Appropriations for Alaska.

The Alaska service is administered by a special division of the Bureau of Education headed by (1) a superintendent of education, who works immediately under the direction of the United States Commissioner of Education; (2) five district superintendents; (3) an official force in Washington; (4) employees of the supply and disbursing office at Seattle; (5) 12 physicians and 12 nurses and teachers of sanitation; (6) 109 teachers, a few of whom are native.

*Character of the school work as disclosed by the exhibit.*—The Alaska educational exhibit emphasized the practical character of the

schools among the natives. It included a large variety of activities showing how the teachers, physicians, and nurses strive to promote the physical, moral, and industrial welfare of the people—adults and children.

The regular school work includes elementary subjects, such as the rudiments of English, writing, and drawing, practical forms of arithmetic, some geography and history in story form, physiology, and personal hygiene. The industrial work of the schools is varied to suit the needs of particular sections of the territory, the purpose being to impart such instruction as shall enable the children when they grow up to live comfortable and independent lives in their

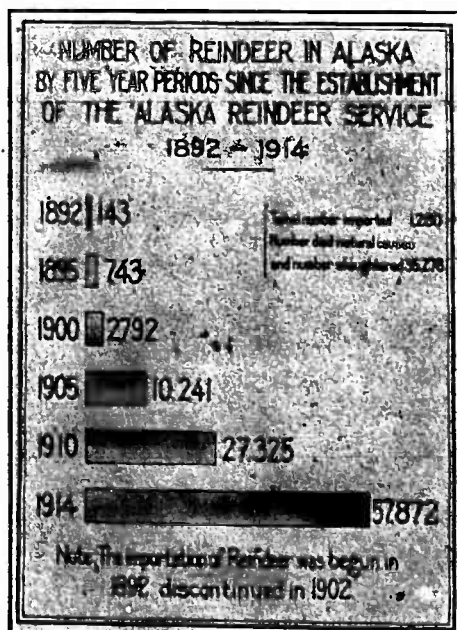


FIG. 61.—Reindeer in Alaska.

own community. In general, the industrial work includes carpentry, cooking, and sewing, and agriculture in the form of school and home gardening.

The schoolhouses, all of them erected at Government expense, are planned as social centers. In addition to the customary classroom and quarters for the teacher, many of the schoolhouses have well-equipped quarters for industrial work of various kinds, a school kitchen and laundry and baths for the use of the entire community. The classroom is available for public meetings and for occasional social gatherings.

*Work among adults.*—The teachers of Alaska are obliged to undertake tasks quite unusual in ordinary teaching. Teachers and nurses are obliged to devote much of their time to doing what they can to establish sanitary conditions by inspecting and improving local housing conditions. Cleanliness is encouraged and a more wholesome diet attained by showing children and adults how to raise the common vegetables in order to vary the old meat and fish diet.

Tuberculosis, trachoma, rheumatism, and venereal diseases prevail to an alarming extent among the natives, due to their former promiscuous mode of living in poorly ventilated huts and subsisting on a diet of too little variety. To improve these unfortunate conditions, Congress has voted an annual appropriation under which the Bureau of Education employs physicians and nurses and contracts for the use of a number of hospitals.

*The reindeer service.*—The value of this work among the natives is hard to overestimate. It means that the people who formerly were obliged to subsist almost wholly on a fish diet have obtained a new source of supply, both in food and clothing, besides obtaining a suitable beast for transportation and travel. The reindeer industry began in 1892 with the importation by the Bureau of Education of 171 reindeer from Siberia; 1,280 animals in all have been imported. Figure 60 gives the total appropriation in five-year periods for the schools in Alaska and for the Alaskan reindeer service.

Similarly figure 61 gives the number of reindeer in Alaska by five-year periods since the establishment of the service.

The Alaska educational exhibit attracted considerable attention to the heroic work being done by the white and native teachers in this remote Territory of the Nation and the very practical results obtained through their efforts.

#### THE PHILIPPINE ISLANDS.

The exhibit of Philippine education was exceptionally complete and showed in graphic terms the remarkable growth in school education since the system was reorganized by the American Government in 1908. Opportunities for school education are now open to the whole Filipino people, good schools being found even in the remotest rural districts. While school attendance is not compulsory, nearly 500,000 children are in school. A very important feature of this school system as emphasized in the educational exhibits is education for the uplifting of Filipino rural life, including every phase of agriculture and home industry.

*The Philippine school system strongly centralized.*—The system in point of organization is unlike anything known in the United States. It has sprung out of the chaos which existed at the time

of American intervention and has developed largely out of the needs of the Filipino race, which, in physical environment and political and social experiences, is quite different from our own people. The distinctly centralized character of Philippine educational organizations may be seen at a glance at figure 62.

**PHILIPPINE PUBLIC SCHOOL SYSTEM**

| <b>PRIMARY</b><br>FOUR YEARS<br>GENERAL<br>42288 PUPILS<br>GRADES I - II - III - IV   | <b>INTERMEDIATE</b><br>THREE YEARS<br>VOCATIONAL<br>207768 PUPILS<br>GRADES V - VI - VII   | <b>SECONDARY</b><br>FOUR YEARS<br>MINOR PROFESSIONAL<br>28603 STUDENTS<br>FIRST SECOND, THIRD, FOURTH YEARS   | <b>UNIVERSITY</b><br>TWO TO SEVEN YEARS<br>PROFESSIONAL AND CULTURAL<br>1418 STUDENTS<br>FROM TWO TO SEVEN COLLEGE YEARS   |
|---|--|---|--|
| <b>CURRICULUM</b><br>GENERAL<br>LANGUAGE, READING<br>NUMBERS-ARITHMETIC<br>HYGIENE, CIVICS, GEOGRAPHY<br>MUSIC AND DRAWING<br>GOOD MANNERS AND RIGHT CONDUCT<br>PLAYS AND GAMES<br>PLAIN SEWING, COOKING, LACE<br>EMBROIDERY, HATS, MATS<br>BASKETRY, WOODWORKING, GARDENING<br>BAMBOO AND RATTAN FURNITURE | <b>COURSES</b><br>GENERAL 224 SCHOOLS 68888 PUPILS<br>TEACHING 28 SCHOOLS 4204 PUPILS<br>HOUSEKEEPING AND HOUSEHOLD ARTS 78 SCHOOLS 2924 PUPILS<br>TRADES 40 SCHOOLS 3028 PUPILS<br>FARMING 10 SCHOOLS 1087 PUPILS | <b>COURSES</b><br>GENERAL 37 SCHOOLS 482 STUDENTS<br>NORMAL 1 SCHOOL 1272 STUDENTS<br>NURSING 1 SCHOOL 82 STUDENTS<br>TRADES 3 SCHOOLS 248 STUDENTS<br>AGRICULTURAL 2 SCHOOLS 228 STUDENTS<br>COMMERCIAL 1 SCHOOL 233 STUDENTS<br>SURVEYING 1 SCHOOL 39 STUDENTS<br>NAUTICAL 1 SCHOOL 25 STUDENTS | <b>COLLEGES</b><br>LIBERAL ARTS<br>JUNIOR COLLEGE STUDENTS<br>2 YEARS SENIOR COLLEGE STUDENTS<br>3 YEARS LL.B. 128 STUDENTS<br>3 YEARS LL.M. 25 STUDENTS<br>3 YEARS LL.S. 128 STUDENTS<br>MEDICINE AND SURGERY 8 YEARS M.D. 28 STUDENTS<br>TROPICAL MEDICINE<br>PUBLIC HEALTH 7 YEARS D.T.M. OR N. 28 STUDENTS<br>PHARMACY 3 YEARS PH.D. 48 STUDENTS<br>VETERINARY SCIENCE 5 YEARS V.M. 128 STUDENTS<br>AGRICULTURE 2-4 YEARS B.S. 128 STUDENTS<br>FORESTRY 2 YEARS B.S. 28 STUDENTS<br>ENGINEERING 4 YEARS B.S. 128 STUDENTS<br>FINE ARTS 5 YEARS CLERICAL 700 STUDENTS |

FIG. 62.—The Philippine system.

The secretary of public instruction, who is a member of the Philippine Commission, has charge of many insular activities, among which is education. The director of education, who is chief of the insular bureau of education, is charged with the executive admin-

istration of the entire school system. Two assistant directors share with the director of education the many responsibilities of school administration. The entire group of islands is further divided into 38 school divisions, each with its division superintendent responsible to the director of education. Each division is further subdivided into supervision districts in charge of supervising officials who are similarly accountable to the division superintendents. Finally, the local school principals and classroom teachers work under the immediate direction of the district supervisors. To quote the late director of education, Frank R. White:

The system is a unit; responsibility is definitely placed for every official act; the organization is mobile—changes of personnel up, down, or out are

## EVOLVING A SCHOOL SYSTEM

THE GOVERNMENT HAS

PROFITED BY SPANISH EXPERIENCE

STUDIED THE DESIRES AND NEEDS OF THE FILIPINO PEOPLE

MADE ECONOMIC AND EDUCATIONAL SURVEYS

CONSULTED FOREIGN COUNTRIES HAVING SIMILAR CONDITIONS

FOLLOWED THE BEST EDUCATIONAL TRADITIONS

AND MADE FIRST HAND EXPERIMENTS

IN ORDER TO EVOLVE A SCHOOL SYSTEM ADAPTED

TO THE NEEDS OF THE FILIPINO PEOPLE

FIG. 63.—Chart emphasizing evolution of Philippine education.

easily effected; merit and efficiency can be and are promptly recognized; inefficiency or viciousness clothed with arbitrary authority may easily do great harm. But in the situation we are here describing adequate checks are established; the secretary of public instruction and the governor general will quickly note evidences of discrimination or other untoward tendencies, and the remedy is easily applied.

*Evolution of the system.*—For several years following the establishment of the American school system, the teachers devoted all their energies to the problems of organization and administration, and to a study of the needs of the Filipino people. By degrees a system of industrial education has been organized which challenges comparison elsewhere.





the professional schools or directly for life activities. The subjects in the triangular spaces—Latin, algebra, and solid geometry—are optional only.

It is well to bear in mind that in the Philippine Islands, with the system of voluntary attendance, the children in the primary school range in age from 7 to 20 years, or over. It is interesting to note, however, that with the gradual standardization of courses the age of entrance to the primary school is rapidly dropping toward the normal entrance age of 7 or 8. During the past year 413,309 pupils

| EACH UNIT FOR A DEFINITE PURPOSE |                                |                              |
|----------------------------------|--------------------------------|------------------------------|
| <u>UNIT</u>                      | <u>ECONOMIC AIM</u><br>TO MAKE | <u>SOCIAL AIM</u><br>TO MAKE |
| GRADE I<br>PRIMARY               | A LITERATE WORKER              | A LITERATE PERSON            |
| PRIMARY<br>4 YEARS               | AN EFFICIENT WORKER            | A CITIZEN                    |
| INTERMEDIATE<br>3 YEARS          | A TRAINED CRAFTSMAN            | A LOCAL LEADER               |
| SECONDARY<br>4 YEARS             | A PROFESSIONAL MAN             | A STRONG PERSONALITY         |
| UNIVERSITY<br>2 TO 7 YEARS       | A PROFESSIONAL MAN             | A NATIONAL LEADER            |

FIG. 65.—Chart showing units in the Philippine system.

attended the primary schools, which is sufficient reason for making these schools complete in themselves.

*Aims and methods in Philippine industrial education.*—The building up of a satisfactory system of industrial education in the Philippine Islands is incomparably easier than in the United States with its highly organized and diversified industries. In the islands the natives live a comparatively simple life. Agriculture, primitive in the extreme, is the chief means of sustenance. A variety of household industries are practiced and are depended on to supplement the often meager returns from tilling the land. To perfect and to multiply these industries and to place them and general farming on

the modern commercial basis and so lift the people out of their narrow provincialism is largely the task of the new schools.

The so-called educational values in the industrial system are subordinated to the immediately practical. The director of education has made a careful study of all the existing industries and has brought them to a high standard of perfection in the schools, soliciting the assistance of the most expert industrial workers as teachers in the schools.

*Phases of agricultural education.*—The various agricultural activities of the Philippine system may be classified under the following heads:<sup>1</sup> (1) Agricultural schools; (2) Farm schools; (3) Settlement farm schools; (4) Gardening—(a) In intermediate grades; (b) in

**WHY SUCH A PRIMARY COURSE?  
THE MAJORITY OF PUPILS NEVER GET BEYOND GRADE IV  
THEREFORE**

**PRACTICAL INSTRUCTION IN HYGIENE AND SANITATION:—**  
INCIDENTALLY IN GRADES I TO III. REGULAR COURSE IN GRADE IV

**TRAINING FOR CITIZENSHIP, THROUGH SCHOOL SOCIETIES AND REGULAR CLASS INSTRUCTION IN GRADES III AND IV**

**MORAL EDUCATION, THROUGH INSTRUCTION IN GOOD MANNERS AND RIGHT CONDUCT GRADES I TO IV**

**EDUCATION FOR HOME MAKING, GRADES I TO IV**  
SEWING AND COOKING FOR GIRLS  
GARDENING, BAMBOO AND WATTAN FURNITURE MAKING FOR BOYS.

**INDUSTRIAL TRAINING**  
EVERY GIRL AND BOY TAUGHT A HANDICRAFT: MAT, BASKET, SLIPPER, MAT, LACE OR EMBROIDERY WORK.

FIG. 66.—Chart explaining the reason for the Philippine plan.

primary grades; (c) home gardening; (5) School ground improvement; (6) Nurseries and tree planting; (7) Food campaigns—(a) Corn growing; (b) use of corn; (c) yams; (d) sweet potatoes; (e) legumes; (8) Garden days and agricultural fairs; (9) Extension work.

To quote again from the report of the late director of education, Frank R. White:

The majority of the Filipino people live in simple little houses quite bare of furnishings; they have little clothing; their diet is restricted; they know the need of little that comes beyond the limits of their own little community; but they are an aspiring, ambitious people, quick to realize new needs as they learn of the social life and practices in more highly developed countries. As

<sup>1</sup> From Philippine Bureau of Education Report, "Articles and Reports on the Philippines."

the opportunities for education are rapidly extended, so that they touch the entire Philippine population, the people of all classes become solicitous to improve their condition of living. They need better houses, with more furniture in them; they need more and better clothing; many need a wider variety of food; they need to see their country and their people beyond the borders of their own native villages; they need books and papers to afford them a broader outlook on the world.

The new school system is built around the needs of the native population. The industrial program of the schools is very material and frankly commercial in character.

*How this work is supervised.*—This very comprehensive scheme of agricultural education is made possible by the satisfactory system



FIG. 67.—Industrial work in the Philippine educational exhibit.

of supervision provided for it. The work is under the control of the director of education, who charges the assistant director with carrying out his policies. The latter has the assistance of an inspector attached to the general office, who devotes all his time to supervision of the various agricultural activities. Special teachers are employed to give agricultural instruction in the agricultural and farm schools.

All teachers, indeed, are required to be proficient in agriculture, or at least in gardening, which subject is usually taught by members of the regular teaching force. Garden specialists have charge of gardening in the larger schools.

*Preparation of teachers in the industrial subjects.*—Immediately following the American occupation of the archipelago, a large army of well-prepared teachers from the United States took hold of the task of organizing the schools. Since then many American teachers have returned to their own country, and a force of native teachers has been prepared to fill the vacancies caused by their departure. At the present time 612 American and 8,855 Filipino teachers administer the schools of the islands, the former holding most of the important positions as supervisors and principals of the large schools. Out of the 679 industrial teachers, only 70 are American.

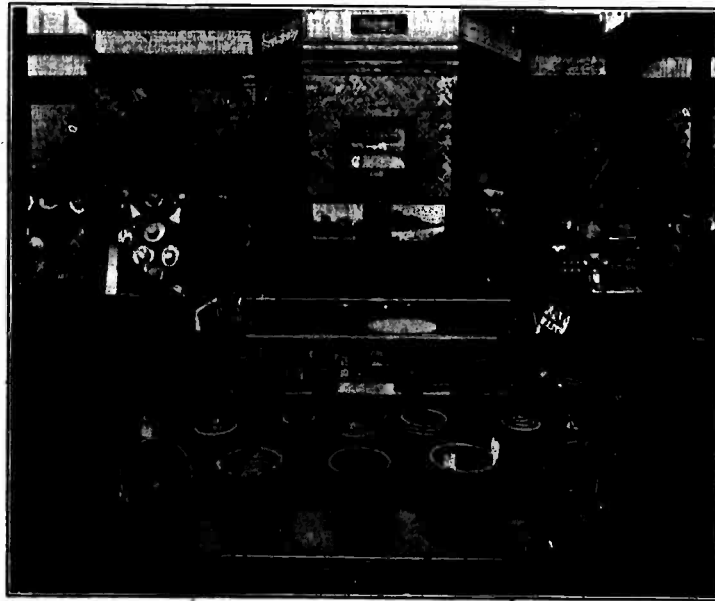


FIG. 68.—Collection of baskets and other industrial work in the Philippine educational exhibit.

The Filipino teachers are prepared for their activities under the so-called "Pensionado system," that is to say, at the expense of the State. The most promising young men and women—approximately 200 each year—are assigned to places in the Philippine Normal School, the Philippine School of Arts and Trades, and the College of Agriculture, upon recommendation of the division superintendents. These teachers-in-training spend two years in one or another of the above-mentioned schools before returning to their respective Provinces to begin their new tasks.

The agricultural "pensionados" are assigned to the college of agriculture for one or two years of work. The Philippine Normal

School gives instruction in gardening, which is required of all. Excellent courses in agriculture and gardening are also offered in

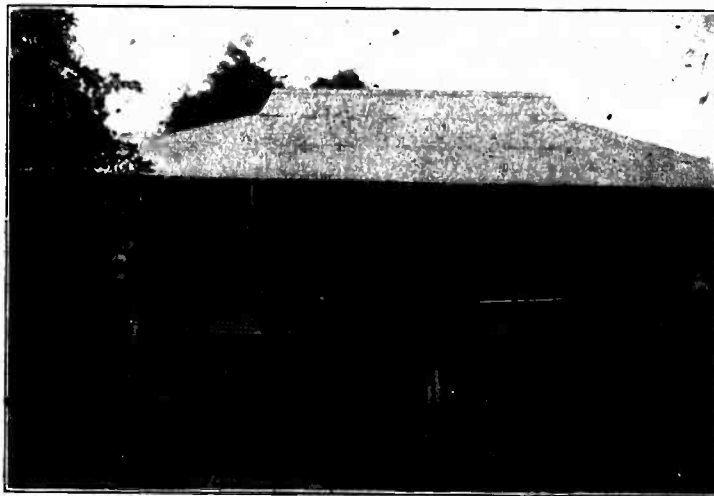


FIG. 69.—Barrio school building, Salinas, Bacon, Cavite.

the annual Manila Vacation Assembly for teachers and in the 34 other vacation institutes indicated in charts 44 and 45.

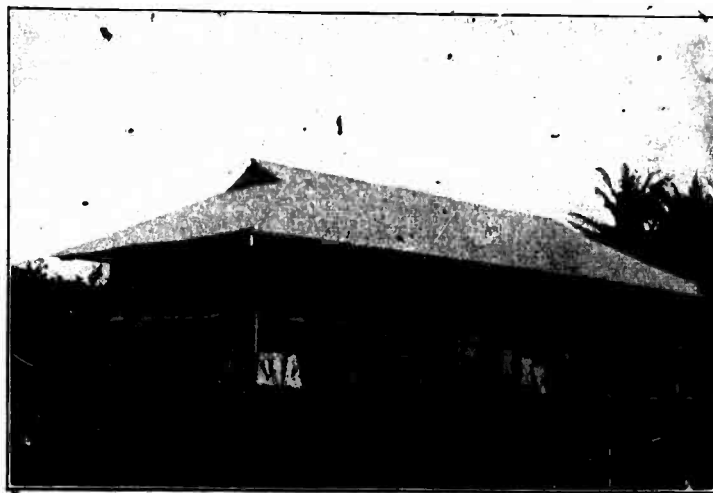


FIG. 70.—A two-room unit barrio school in the Philippines.

*Agriculture in a variety of schools.*—The Philippine system of agricultural education, as clearly shown in the exhibits, is very com-

prehensive, and embraces, besides the study of scientific agriculture in the Central College of Agriculture, (1) secondary agricultural schools, (2) intermediate farm schools, and (3) settlement farm schools.

The secondary "agricultural schools" or just "agricultural schools," under which designation they are generally known, are four in number. One of these, the Central Luzon Agricultural School, is designated for Christian students, the other three for non-Christian. All the schools are provided with dormitories, and the work covers the entire calendar year.



FIG. 71.

The chief points of interest in the Luzon Agricultural School are summarized as follows by the Philippine director of education:

1. The school controls 1,700 acres of reserve land.
2. Two hundred and twenty-five acres are under cultivation.
3. The school is operated as an industrial community.
4. Each student is compelled to earn his own way.
5. The school contains such facilities as a sawmill, traction engine, and other equipment for a large agricultural enterprise.
6. The school is equipped with work cattle, breeding cattle, dairy cattle, hogs, and poultry.
7. Controlled irrigation is available for a part of the farm site.
8. Athletic activities are encouraged.
9. Literary societies and a band are units of the social features.
10. \$5,200 worth of products were produced last year by the 174 students attending the school.

A Record of Bureau of Education Activities, p. 10.

11. The enrollment in the school is now 265 students, and a larger production will be secured for the present year.

12. Four years of work are given in this school, three of which are in the intermediate course in farming, as prescribed in the course of study for Philippine public schools.

13. An extra year of work, which includes secondary subjects and special emphasis on farm mechanics and farm management, is being added to the school.

The course of study for the non-Christian schools differs but little from that given above and need not be repeated here. On the whole, the work of these schools is very suggestive and is worth a careful study by American educators.

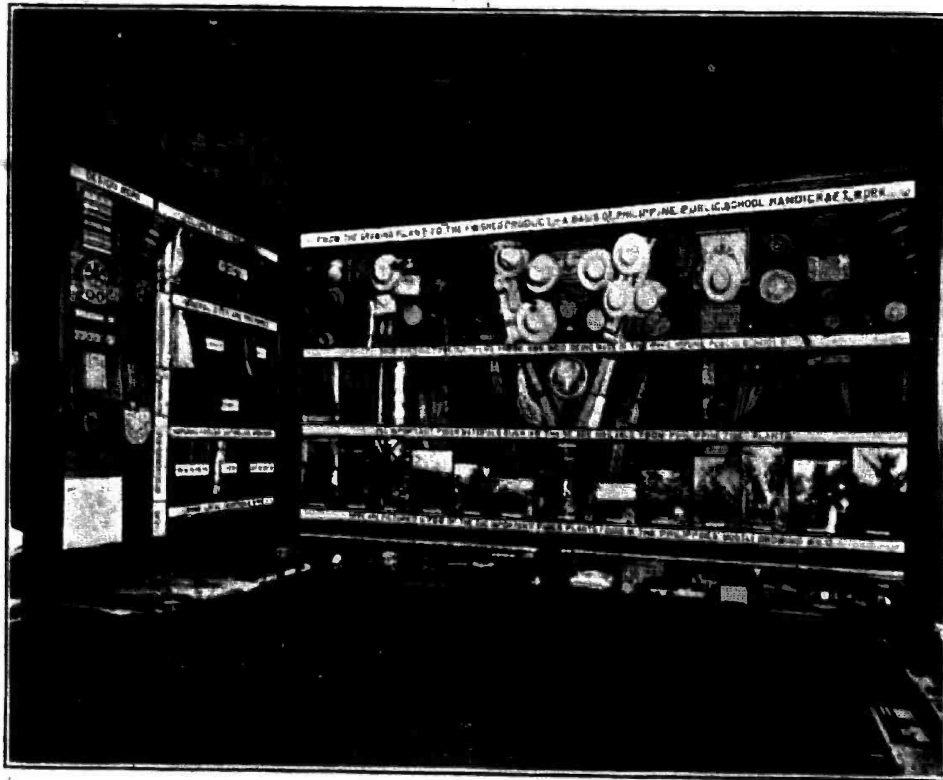


FIG. 72.—Excellent exhibit of handcraft work from the Philippine public schools.

The *farm schools* are institutes of intermediate rank, giving instruction in the fifth, sixth, and seventh grades. There are eight such schools, all of them in Christian Provinces.

Three courses in agriculture and housekeeping and household arts are given in all these schools. At the present time the school attendance comprises 1,001 boys and 213 girls. Home extension is given strong emphasis, as are also seed collection, local and staple crops, and intensive soil cultivation. The central feature in each of the eight schools is, perhaps, the model school farm of from 25 to 30 acres. This is equipped as a model Filipino farm and has in addition such other equipment as correct agricultural education demands.

The settlement farm schools, of which there are 47 in operation, are all of primary grade. They were established to teach the roving non-Christian tribes the value of permanent agriculture. These farm schools are accomplishing a remarkable work. The acres in cultivation in the schools number 350, and 1,462 boys and 751 girls are in attendance.

*School and home gardening.*—The Philippine schools can teach Americans some practical lessons in gardening. Vegetable gardens

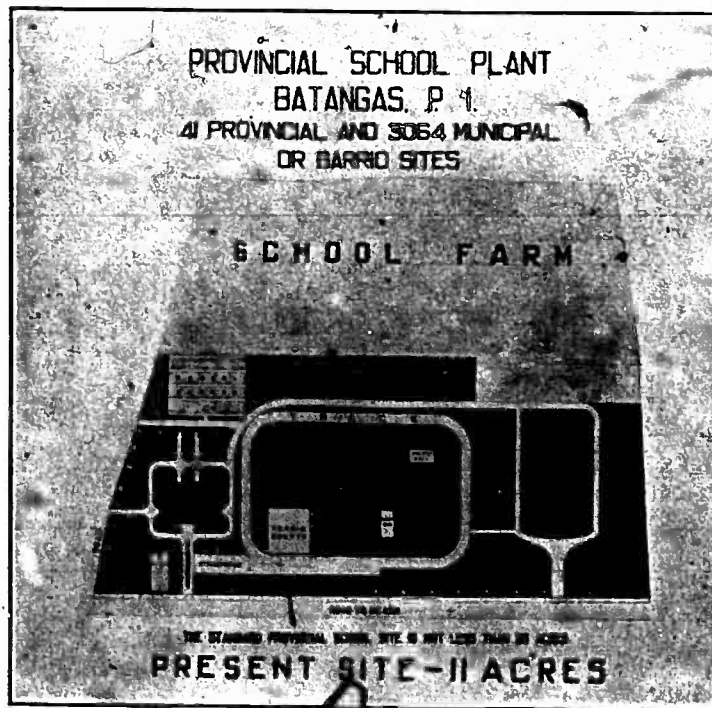


FIG. 13.

are required in connection with all schools, city and rural, except the schools giving trade courses. While the objects of gardening are many, the primary aim with which the Philippine schools are the most concerned is to bring about a higher standard of living among the Filipinos. This may be accomplished by providing:<sup>1</sup> (1) A more abundant food supply, (2) a greater variety of food, (3) food of better quality.

<sup>1</sup> See school and home gardening. Bulletin No. 31 (revised), 1913, Bureau of Education, Manila, P. I.



This aim is accomplished by emphasizing in garden work four distinct features:

1. Instruction in the fundamental principles of gardening and plant life.



FIG. 74.—Director of education Frank L. Crone and Gen. Emilio Aguinaldo in the corn plot of Emilio Aguinaldo, Jr., Cavite, Cavite.

2. Demonstration of these principles in the school gardens.  
3. The application at the pupils' homes involving productive work in the home garden.

31694°—17—7.

4. The giving of definite credit for supervised work both at school and at home, which will have its proper weight in promoting the pupil.

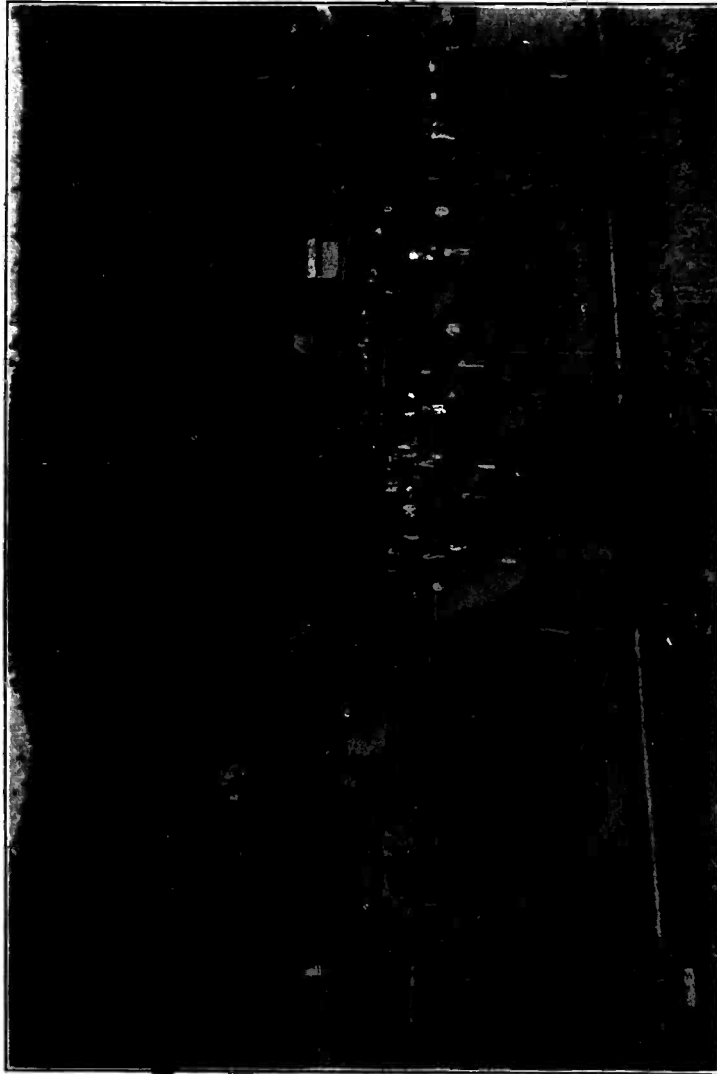


FIG. 75.—A typical school garden, from a photograph in the Philippine exhibit.

The director of education furnished the following suggestive garden statistics: (1) School gardens, 3,119; (2) home gardens, 39,901; (3) boys instructed in gardening, 61,167; (4) girls instructed in gardening, 1,810.

In addition to what has been mentioned, school-ground improvement, including lawn-making, care of ornamental plants, development of playgrounds, etc., is required of all the schools.

*The schools' food campaign.*—No feature of the Philippine school system is more interesting and suggestive than the so-called "food campaign." It resembles in most particulars the boys' and girls' club work in the United States.

The most important of these campaigns have been devoted to improving the quality and quantity of corn, sweet potatoes, and

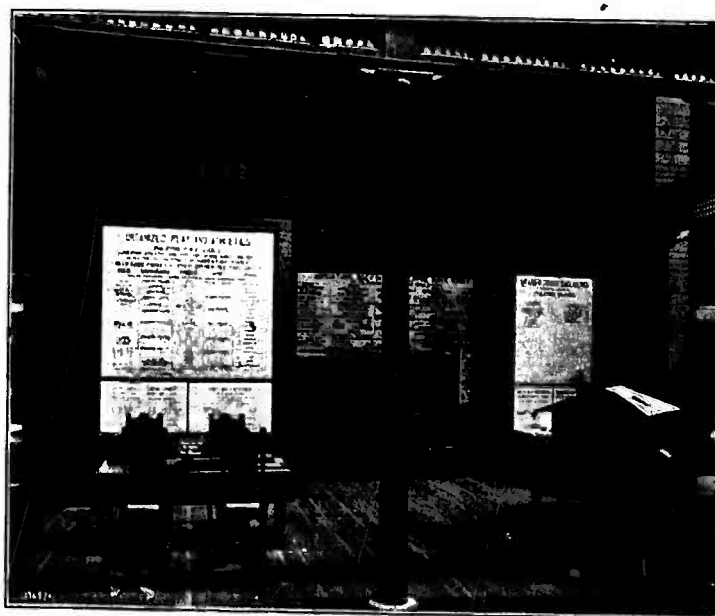


FIG. 76.—Part of the Philippine exhibit.

legumes. The following are some of the figures reported for the corn campaigns which have now been carried on for three years:

1. 43,561 pupils were enrolled in corn-growing contests last year.
2. 300 exhibits were held.
3. 650,108 pupils exhibited corn.
4. 141,561 people attended the corn exhibits.
5. 367 popular corn demonstrations were held.
6. 499,834 people attended the corn demonstrations.
7. 352 schools gave regular lessons in preparing corn food.
8. 8,835 girls received instruction in preparing corn foods.
9. 218 schools gave special corn lunches.
10. 8,722 pupils exhibited garden products in connection with the corn exhibits.
11. 1,788 educational lectures were given on corn.

12. 373,185 people were reached by these lectures.

13. All told, 1,018,597 people have been reached in the three years by the above-named activities in corn.

*Supervised play and athletics.*—One of the greatest civilizing agencies introduced through the schools is supervised play and athletics. The old native sports, such as cock fighting and bull baiting, no longer can compete with the American game of baseball, the new track athletics, and the like.

*Permanent school buildings.*—Another very important phase of educational progress in the Philippines is the present campaign for

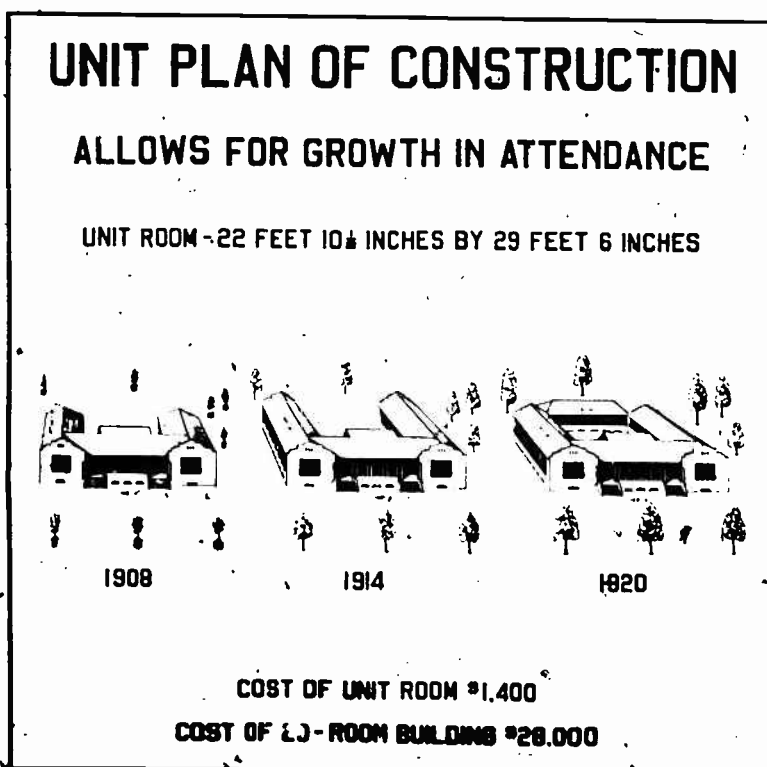


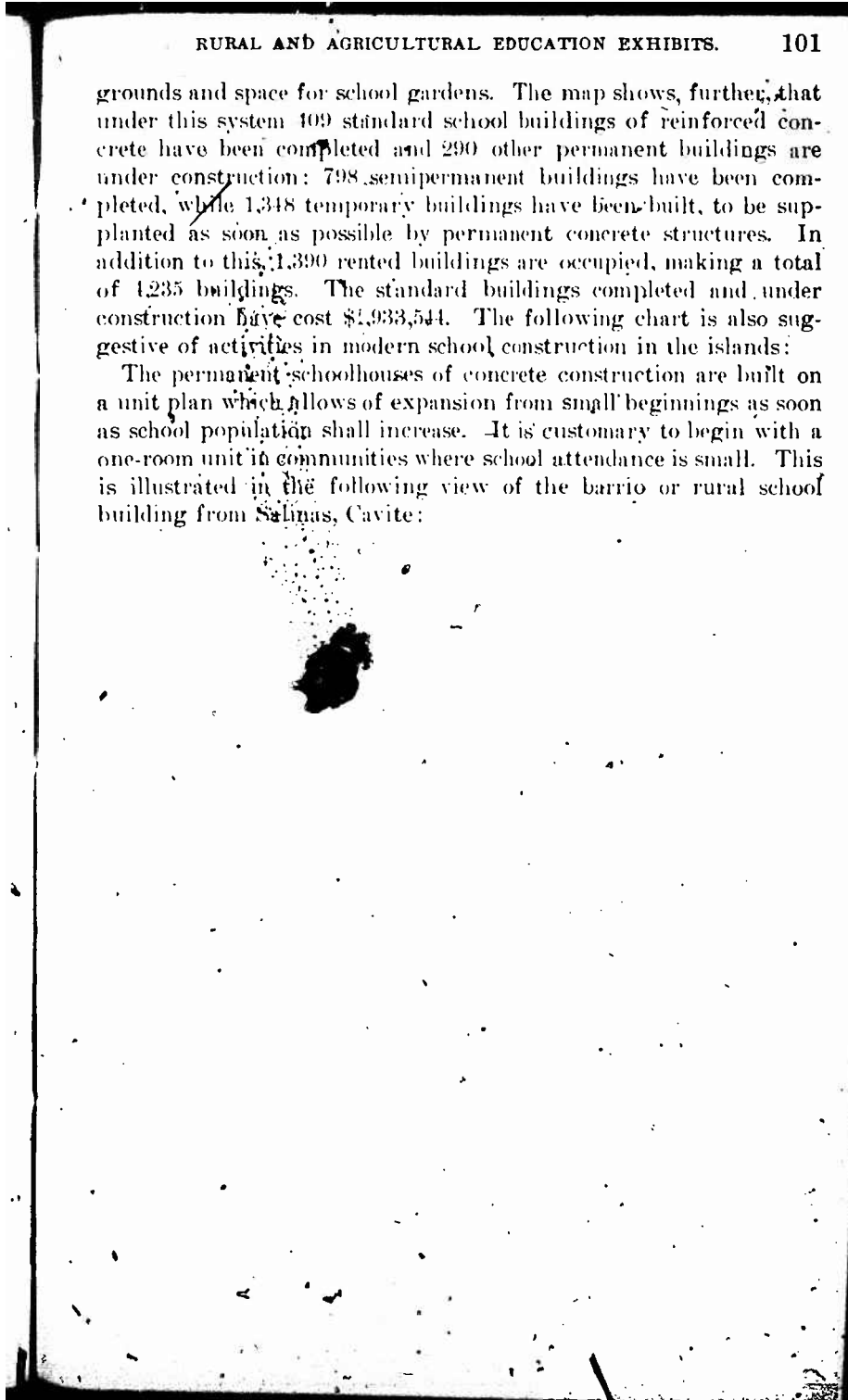
FIG. 77.

modern sanitary school buildings to supplant the flimsy insanitary structures which were universally used at the time of the American intervention. The following map gives some idea of this campaign:

It shows first of all that the insular government aids the local community in the construction of standard school buildings; for each dollar furnished locally, the insular government gives two dollars. However, one of the prerequisites for Government aid is ample play-

grounds and space for school gardens. The map shows, further, that under this system 409 standard school buildings of reinforced concrete have been completed and 290 other permanent buildings are under construction; 798 semipermanent buildings have been completed, while 1,348 temporary buildings have been built, to be supplanted as soon as possible by permanent concrete structures. In addition to this, 1,390 rented buildings are occupied, making a total of 4,235 buildings. The standard buildings completed and under construction have cost \$1,933,544. The following chart is also suggestive of activities in modern school construction in the islands:

The permanent schoolhouses of concrete construction are built on a unit plan which allows of expansion from small beginnings as soon as school population shall increase. It is customary to begin with a one-room unit in communities where school attendance is small. This is illustrated in the following view of the barrio or rural school building from Salinas, Cavite:



#### IV. PUBLIC AND PRIVATE AGENCIES.

##### RECENT DEVELOPMENT IN RURAL LIBRARIES.

The exhibit of the American Library Association devoted an entire section of its space to the activities and accomplishments of rural libraries. It showed in a graphic way that library development in villages and small towns has made great progress during the past decade, partly, no doubt, as one phase of the great general

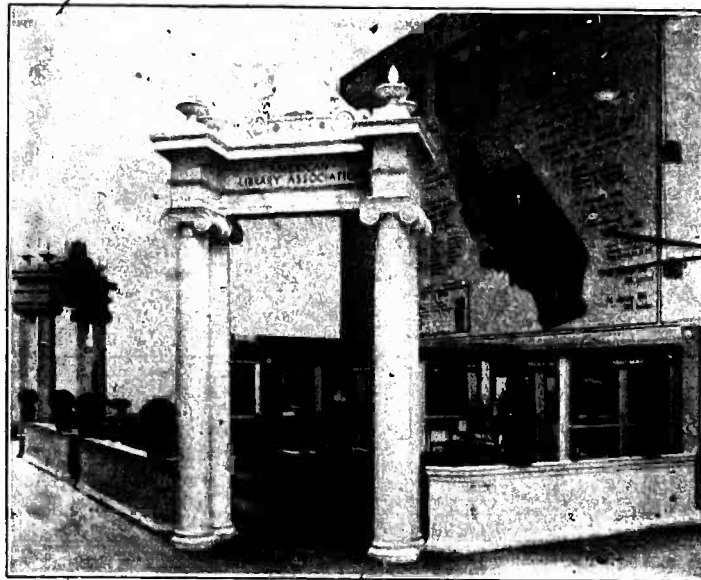


FIG. 78.—The American Library Association exhibit.

awakening in country life. But it is also true that the library itself has been a great factor in bringing about some of the most far-reaching improvements in the physical and social conditions in thousands of small communities.

For the old idea of a library as merely a collection of fiction, juveniles, and "classics" is passing away. The modern library, in city or country, is placing at the disposal of women's clubs, granges, and active leaders and workers, books and magazines which spread

new ideas and give the impetus to many changes. On its shelves may now be found the latest literature on alfalfa and septic tanks, county taxation and road construction, better school buildings and consolidation, house furnishing and jelly making, and how to put up the school lunch. Nor does it neglect those persons who in every community love the more cultural side of reading. The library is now relied on to supply programs for club meetings and entertainments, or pictures of costumes for a play or pageant, as well as to provide people the means of self-education.

Progress in rural library work was considered in the exhibits under three heads:

1. The small individual public library in the village.
2. Library commissions and State aid to small libraries and traveling libraries.
3. The county library system, especially as found in California.

It seems to be the ambition of every community to have a library building of its own. Many improvements have been made in the design and especially in the interior planning of small library buildings, so as to make an attractive home for the books, and more especially to provide for the convenient handling of the work by the person in charge, to give the best service to the patrons. Single-room buildings are much in favor. The children, adult readers, and the books themselves make it necessary to divide the work into three divisions, which must be separated to some extent. This is being accomplished by low bookcase partitions, instead of by cutting the space into small stuffy rooms. Many of the buildings are adapted to social centers, having lecture halls and similar rooms. In a few instances the library is provided with adequate room in a large central community building. This gives an excellent opportunity for the library to connect its books more directly with the various neighborhood interests, and its own space can be given to purely library uses.

The number of library buildings which have been erected by gifts from Mr. Andrew Carnegie has grown steadily. The only requirement which the donor makes is that the community guarantee to give each year, for maintenance, 15 per cent of the cost of the gift. This has been increased from 10 per cent at the request of library workers in all parts of the country, for there is a great temptation for a community to erect a building for the mere pride of having it, without realizing that the books and the services of a trained librarian are more important than the building itself.

The system of individual local libraries and library buildings is nowhere so strikingly illustrated as in the State of Massachusetts. The State contains 35 cities and 319 towns (townships). Every town except one has a free public library, though a few of them are

in buildings not owned by the town. The population of the State in 1910 was 3,366,416. The total stock of books in all the libraries was 6,291,811 and the circulation of books was 12,440,819. In other words three books were borrowed by every man, woman, and child in the State, on an average.

*State aid and library commissions.*—Out of the desire to carry on organized help for library work grew the library commissions, which now exist in 36 States. To a large extent their activities benefit the rural libraries especially. The commissions are organized under State laws and at State expense. In most cases the commission itself is composed of public spirited citizens who serve without pay. The



FIG. 70.—Corner in the exhibit of the American Library Association.

active work is in charge of a salaried expert, "secretary" or "agent." The commissions carry on campaigns for the establishment of new libraries and the improvement of methods of operation. In New York State, institutes of rural library workers are regularly held in different parts of the State. The commissions encourage better reading and the purchase of better books, by means of suggestive lists. In several States they attend to the distribution of a State fund among small libraries which come up to a standard of book buying and management.

As a further development there has grown up the system of "traveling libraries," which is in operation in many States. Iowa,



Wisconsin, and New York have made special progress in this direction. In New York there is no commission, but the work is carried on by the division of educational extension of the New York State Library in the traveling library system which sends out from headquarters collections of from 25 to 200 or 300 books to small commu-



FIG. 80.—Map illustrating the spread of the California county free library movement.

nities. There they are placed in a store or in the schoolhouse, or perhaps in the village hall or clubroom. The headquarters office appoints some one in the community to be responsible for the books—very often the local teacher—and to see that they are properly loaned and returned, and that the records are properly kept. These records have been much simplified during the last few years through

the cooperation of the library workers. In addition the American Library Association and the League of Library Commissions have published several pamphlets for the benefit of the untrained custodians of the traveling library stations.

The books sent out to each station may be borrowed without charge, usually for periods of two weeks, a fine being charged when they are kept overtime. At the end of a stated period, perhaps every three months, the case of books is sent back to headquarters, or to another station, and is replaced by a new selection of books. In this way people in each locality are able to enjoy a constantly changing variety of good recent books on every subject, as well as fiction. Local readers may request special books from the headquarters, through the station. In general, the regular shipments are made up from a rotating series of lists, so that in time every book from the headquarters will reach every station.

*The county library system.*—This is the latest and by far the most successful type of rural library work. It originated in Ohio, and one of the best known activities of Van Wert County, Ohio, is the Brumbach Library. This library, whose building was given by Mr. Brumbach several years ago, is supported by county taxation, and is the center for a library service which reaches all parts of the county. Fifteen country storekeepers are its "branch librarians," and 101 rural-school teachers are the custodians of its schoolroom stations. In 1913 there were 115,550 registered borrowers, besides 2,435 school borrowers. Over 90,000 books were loaned in one year.

In Oregon the county library system has also been most successful. In Multnomah County the Portland Public Library acts as the central headquarters, and carries on a system of traveling libraries to a chain of country stores and schoolhouses. Several of the other counties have organized the service.

It is in California, however, that the county system has been carried out on such a large, carefully planned and satisfactory scale as to excite the interest of the whole country. The entire State will soon be covered by the system, each county catching the enthusiasm from its neighbor. The county is the unit, and each county organizes on its own desire, taxes itself, appoints its own librarian, buys the books it wishes, and carries on its work without let or hindrance. California started with a State system of traveling libraries several years ago, but distances are great, and the difficulties of operating one service in a State which is 700 miles long proved the need of a plan which would bring the organization nearer to the patrons. In the county system the county headquarters is within a day's ride of the stations in nearly all cases.

The chief point of excellence of the California system is that it operates under a State law so full and complete as to cover every



FIG. 81.—Preparing the traveling libraries at county headquarters.

contingency that may arise, allows for a flexible cooperation and even consolidation between county and public libraries, as local needs may suggest, and, best of all, provides that when a county adopts the system it must automatically levy a tax upon itself, just as it does for public schools, sufficient to carry on the service in an adequate manner. This tax may be as much as 1 mill on each dollar of assessed valuation of the county.

Out of the 58 counties in the State, 26 had been organized up to January 1, 1915. Since then six additional counties have undertaken the service, some of these the most mountainous and sparsely settled in the State. The State library has a county library organizer and a school library organizer who are sent out to new counties to help

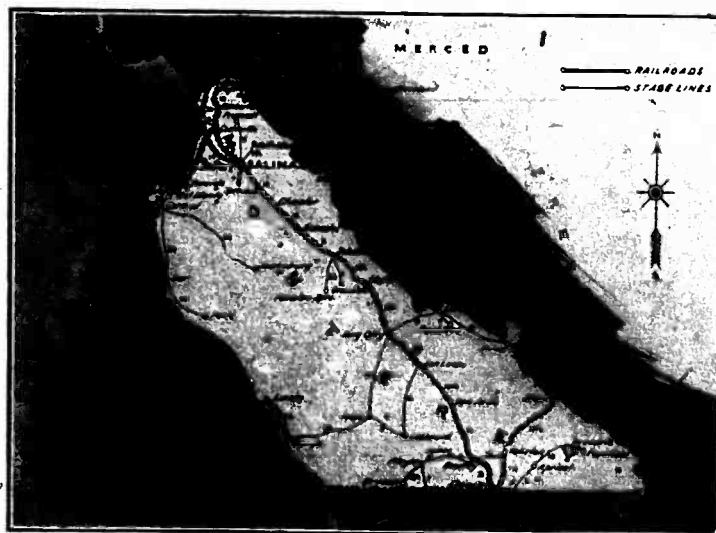


FIG. 82.—Map illustrating the operation of the free library movement in Monterey County, Cal.

in interesting the public and then to help the county supervisors in establishing the service. They give information and assistance wherever it may be needed. Within the county work itself, however, the State library has no control except to see that proper reports are sent in from the counties.

It is only a matter of a very few years until the whole State will be covered. In the 26 counties which had the service in 1914 the people taxed themselves \$280,302 for the county library service. The population served was 1,557,008, and the area covered 95,950 square miles. There were 1,073 county branches or stations. This service is exclusive of the 132 independent public libraries in the cities and large towns of the State.

## EDUCATIONAL PROPAGANDA THROUGH PRIVATE AGENCIES.

There is a marked tendency in recent years for private agencies to supplement the educational efforts of the National and State Governments. Typical of the definitely valuable work done in this way is the extension service of the International Harvester Co. The accompanying photograph is taken from a corner of the International Harvester Co.'s great exhibit of farm machinery and farm helps in the Agricultural Building. It shows a few of the lecture charts, educational pamphlets, and photographs of the extension activities organized under the company's agricultural extension service.

To get a fair idea of the far-reaching influence of the International Harvester's work to improve agricultural production and distribution it is necessary to make a closer study of how the extension service is organized and promoted. There is nothing mercenary about it; the service was organized not to advertise the harvester company—although, of course, some incidental advertising can not be avoided—but to give the agricultural population of the country what is considered by the harvester company itself the people's due from a great organization whose prosperity depends on the prosperity of one-half of the Nation that tills the land.

The agricultural extension service has been organized by Prof. G. P. Holden, formerly of the Iowa Agricultural College faculty, who has free reins to develop it according to his own ideas of present agricultural needs. The activities of the department may be classed as better agriculture campaigns promoted by the field staff and a forward movement in agricultural education through lecture charts, educational publications, lantern slides, and material exhibits.

The most immediately effective propaganda is carried on with the help of a large corps of field workers under the immediate direction of Mr. Holden. This extension force cooperates with National and State Governments and State and local educational authorities for the promotion of better agriculture and all that goes with it. These campaigns have been remarkably effective, and have, in many States, done much to give a new impetus to agricultural life, both by making it more profitable and by helping people to realize that agriculture is a most honorable profession in an agricultural nation.

The lecture charts organized under Mr. Holden's direction are the result of long experience upon this educator's part in agricultural extension. They show some of the most valuable practical farm experiments and investigations carried on under varied conditions in the last quarter century with soils, crops, live stock, weeds, insects, home economics, and sanitation. The experiments contained in the charts are the work of thousands of investigators. Among the facts that they show are:

That grain farming, if kept up for a long period, robs the soil and impoverishes the farmer.

That alfalfa and other legumes, with the proper rotation of crops, enrich the land and increase the yield from year to year.

That corn and alfalfa together are the best-balanced ration known for live stock.

That live-stock farming means prosperity to the farmer.

The lecture charts are sent out to county superintendents, county agents, farmers' organizations, rural and village teachers, and all others interested in rural life and agricultural promotion. Any teacher who is interested in obtaining the free use of the charts may either write direct to the International Harvester Co., Chicago, or work to this end through his county superintendent.

The list of charts of special interest to teachers include the following: Corn is King; Alfalfa on Every Farm; A Fertile Soil Means a Prosperous People; Live Stock on Every Farm; Dairying; Greater Profit from the Oat Crop; Making More from the Farm Poultry; Weeds Mean Waste; Home Economics and Sanitation; Trap the Fly; Great Forward Movement in Education; Diversified Farming for the South.

In addition to this variety of charts, teachers and others may have the use of a number of sets of lantern slides on educational subjects, prepared by the extension service, by paying a nominal price to cover express charges and wear and tear. Many educational publications are also issued of special interest to the rural schools. These, too, may be procured at a very nominal price. Literature of this kind especially suited for school use issued by the extension service are: Growing a Garden; Cold Pack Canning; Poultry is Profitable; Making Money from Pigs; A Pig for Every Boy; Harvesting Seed Corn; Testing Seed Corn; Weeds in Alfalfa; Lecture Notes and Alfalfa Charts; Story of Bread; Story of Twine; Creeds of Great Business Men; Binder Twine Industry; Harvest Scenes of the World.

#### PENNSYLVANIA STATE DEPARTMENT OF HEALTH.

The fallacious idea is still largely held that for the open country nature is the only health officer needed; that where there is plenty of space and an abundance of pure air nature will more than counteract the results of man's ignorance of hygienic laws and sanitary regulations. This assumption, unfortunately, has been proved incorrect. In the past, before the establishment of sanitary science, the amount of sickness and death from disease was much larger in urban than in rural communities. More recently, this condition has been reversed. Modern sanitarians have gone so far as to prove that the cities would be less liable to contagious diseases than they are

if it were not for their insanitary rural neighbors. Blind adherence to the old belief in nature as the only necessary sanitary agency, the lack of sanitary inspection, and the antiquated methods of the schools in emphasizing human anatomy instead of personal, school, and community hygiene and sanitation, have been instrumental in keeping several million rural people in the continual thralldom of typhoid fever, malaria, pneumonia, hookworm, and many other preventable diseases.

Under these conditions it is refreshing to report what the Pennsylvania State Department of Health is doing to eradicate disease in rural Pennsylvania, as was so graphically shown in the State board's exhibit in the Palace of Education.

Massachusetts, New York, Florida, and several other States have compulsory medical inspection in rural communities, but in no one State probably has the work been so thoroughly done as in Pennsylvania. The exhibit in the Palace of Education was complete in the field of school hygiene, and particularly so in rural school hygiene. The practical application of the principles of hygiene to school life is evidenced in two directions: First, personal hygiene as directed by medical inspection to the physical and mental development of the pupil; second, environmental hygiene as directed to the buildings and equipment under which school life is maintained.

In Pennsylvania all health authority is centralized in the person of the commissioner of health and an advisory board with authority to promulgate necessary rules and regulations. The commissioner of health has supervisory control in health affairs of the entire population of the State. As was shown in a county map of the State, the total number of persons working under the commissioner of health was 4,084. These include rural health officers, school medical inspectors, local registrars of vital statistics, tuberculosis dispensary physicians and nurses, sanitary inspectors, distributors of biological products, county medical inspectors, and marriage returns clerks.

A relief model of the State 30 1/2 by 62 inches in size indicated the location of all the rural schools of the State. A legend near by read "400,000 children in rural schools are examined by the State department of health in Pennsylvania. At the same time a sanitary inspection is made of the buildings as to heating, lighting, ventilating, sanitary conveniences, and water supply." A series of interesting photographs dealt with school medical inspection service, showing the inspector and teacher taking temperature and pulse rate of pupil, testing vision in rural school, examining eyes for conjunctivitis, trachoma, etc. Other legends stated that 72.7 per cent of all school children have some form of physical defect which influences their mental and physical progress; that 24.2 per cent of all school

children have defects of vision which retard their mental progress; that 3.2 of all school children have some degree of defective hearing; that 51.7 have defects of the teeth which interfere more or less with speech and proper mastication and digestion of food; that 35 per cent are affected with some occlusion of the upper air passage which favors mouth breathing and its consequent ills, such as frequent attacks of tonsilitis, nasal and pharyngeal catarrh, and lung affections.

The exhibit contained many interesting photographs and models of old and new rural schools, giving school interiors with practical equipment as well as well-planned school grounds with play apparatus and everything else necessary for happy, wholesome play life at the school.

One section of the exhibit was devoted to nourishment of school children. One legend stated that improper feeding and underfeeding of school children is a prolific source of retardation and physical deficiency. Transparencies gave interesting views of penny school lunches, 3-cent school lunches, and free school lunches for undernourished children. Other photographs, transparencies, and models dealt with the children's play life, such as open-air sports, gymnastics and systematic recreation, school fêtes, flower dances, May Day pageants, and folk dances. Similar photographs and transparencies dealt with many phases of household arts. Open-air schools, too, were emphasized for their value in educational as well as physical development of children who would, under ordinary conditions, have been inefficient in both respects.

In connection with the Pennsylvania State Department of Health exhibit, it is interesting to reproduce the latest figures compiled by the board's service of its 1915 inspection of Pennsylvania rural communities:

|  |         |
|--|---------|
| Total number of rural pupils examined.....   | 400,100 |
| Number of defectives (71.48 per cent).....   | 375,427 |
| Percentage of defectives, native born.....   | 84.05   |
| Cases of defective vision.....               | 83,748  |
| Hearing.....                                 | 15,600  |
| Breathing.....                               | 22,837  |
| Tonsils.....                                 | 123,222 |
| Teeth.....                                   | 212,708 |
| Instances of inadequate fire protection..... | 6,500   |
| School buildings insanitary.....             | 12,336  |

The seriousness of this condition speaks for itself. What is true of health and sanitary conditions in rural Pennsylvania is, no doubt, true of most other States. The hopeful thing is that this State at least is honest with itself and has uncovered its own shortcomings. Would that other States might speedily follow Pennsylvania's example!